Railway Age

AND RAILWAY REVIEW

DAILY EDITION

FIRST HALF OF 1928. No. 25B — NEW YORK—MONDAY, JUNE 25, 1928—ATLANTIC CITY — SEVENTY-THIRD YEAR

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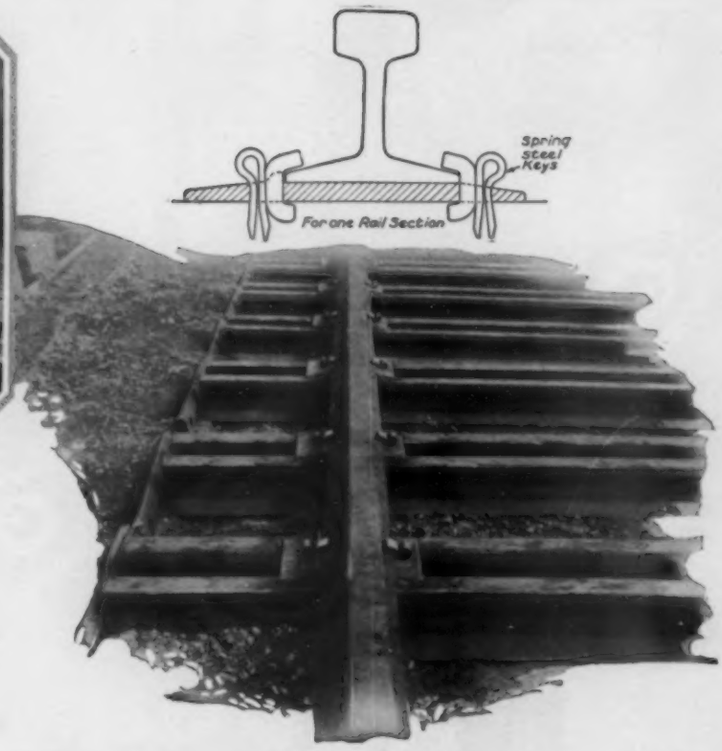

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Spot System Requires Adequate Handling Equipment

THE development of the spot system of freight car repairs, together with the general introduction of the piece-work system, should be a factor in creating a demand for improved and better equipment for car repair shops. For many years practically all of the work of assembling the various parts was performed directly on the spot and frequently on the car itself. In fact, many car shops still follow this system. However, some railroads are now assembling parts away from the spot and transporting them, usually by electric or gasoline crane trucks, to the car for application. This added feature to the spot system, wherever it has been applied, has invariably speeded up production. Its application is essentially similar to Ford's method of assembling automobiles, the successful operation of which requires that each chassis be kept moving along the assembly line. This necessitates rapidity of production at the various assembling or manufacturing points. Up-to-date tools, handling equipment and facilities are needed to maintain the required output. The assembling or manufacturing points, like the spot in a car repair shop, use a highly specialized gang of men. The minute a man is made a specialist he must be supplied with the best of equipment and tools, if the company expects to obtain any profit from specialized endeavor. A man whose sole job is to heat rivets must be supplied with a rivet heater that will heat rivets fast enough to keep the riveter and bucker-up busy. Handling equipment must be provided that will keep the manufacturing gang supplied with material, its working area clear of finished parts, and the assembling gang, working on the spot, supplied with parts ready to apply to the car so that it can be kept moving down the repair track.

Fire Hazard in Car Repair Shops

MANY railroads are closing and permanently abandoning their outlying repair points and concentrating the repairs at the main shops. This is particularly true with car repair facilities. One eastern trunk line is concentrating its wood-mill work at shops located at strategic points on the system. This policy of concentration is "putting all of your eggs in one basket." What are these roads doing to protect their "baskets" from the fire hazard? Do they fully appreciate that if a serious fire should occur at the main shop, the maintenance of equipment program would be seriously affected? One road is fully cognizant of the resultant inconvenience of a disastrous fire. Several years ago its wood mill was completely destroyed by fire. The road was greatly embarrassed in its efforts to maintain its car equipment program. A new fireproof wood mill was built, in which was installed a fire sprinkler system. Not only is the loss of the use of the repair facilities involved in a serious fire, but the cost of replacing expensive machinery and destroyed cars must be considered. Another factor is the question of fire insurance. The rivet forges, the use of welding equipment, the blow torch, the growing use of lacquer paints, and other processes involving more than average fire risk, all affect the insurance rates. By installing a sprinkler system, the insurance rates will be reduced which, alone may justify the cost of installation. Consideration should be given to the installation of a sprinkler system in any new shop, and its possibilities in old facilities, especially where the policy of concentration is being carried out, should be studied.

Firing Practice in Relation to Long Runs

ON coal-burning roads especially, there is a direct relation between firing practice and long, or extended, locomotive runs. In fact, in many cases, fire conditions, more or less fixed by the grade of coal used, are the limiting factor in determining how far locomotives can be operated successfully without dumping the fires. As was pointed out at the annual meeting of the Fuel Association in Chicago by J. M. Nicholson, fuel conservation engineer of the Santa Fe, the extension of locomotive runs over two or more engine crew districts has emphasized the need of better firing practice. With the same grade of coal there is a vast difference in the condition of fires as brought in by different engine crews. The fireman on the second lap of an extended locomotive run should have the fire turned over to him in good condition at the terminal, and it is distinctly up to the road supervisors and foreman in charge at the ter-

minal to see that this is done. In some cases it has been necessary to place a road foreman of engines or fuel supervisor with certain firemen who are continually bringing in poor fires in order to overcome this difficulty. Complaints regarding the kind of fire brought in to intermediate terminals frequently occur at the time extended locomotive runs are established, but will materially decrease under proper supervision. Proper handling of the water supply to the boiler is also an important feature in connection with good firing practice. Water should be supplied to the boiler at as nearly as possible the same rate that it is being used, otherwise uniform firebox conditions can hardly be maintained. It is well-known that a good fireman watches this carefully and attempts to maintain a reasonably low water level at all times. Good firing practice is essential to the successful installation of extended locomotive runs and, consequently, to the realization of maximum economy from a fuel and operating standpoint.

A Commissioner at the Conventions

COMMISSIONER McMANAMY, of the Interstate Commerce Commission, began attending the mechanical conventions almost 30 years ago when he was a locomotive engineer, and has attended them regularly ever since. He always stays long enough to look over the exhibits and inform himself regarding the improvements being introduced in equipment and devices used upon it, and because of his long practical experience as a railroad worker he is an expert observer.

Mr. McManamy and the *Railway Age* for years have had very pleasant relations, although we have differed regarding questions relating to railway regulation. No doubt he thinks this paper is too pro-railroad. We, on the other hand, believe he leans toward a policy of regulation that is too restrictive in its effects upon railway earnings. But Mr. McManamy's course in trying constantly to better inform himself regarding the technique of railroading, and the developments occuring in the field, by regularly visiting the mechanical conventions and the exhibits, and by frequently making trips of observation over railway lines, through shops, etc., sets an example which might well be followed by all members of the Interstate Commerce Commission and its principal employees.

A large majority of the men appointed to the commission have never had any railway experience. They learn most of what they know about the problems of railroading by listening to witnesses who appear before them on behalf of the railways and opposing interests. The problems of railroading do not look the same from the bench where an Interstate Commerce Commissioner sits in a hearing as they do from the rear end of an inspection train, or in an engine house, or a car repair shop. The Interstate Commerce Commission would be a much more constructive regulating body if its members knew more about how a railroad actually is run—the conditions under which it is run, the innumerable problems of daily operation, the problems of carrying on development over a period of years, and the untiring effort, the loyalty to duty, and the ability that are devoted to the solution of these problems by railway officers with salaries that are by means "fancy" as compared with the incomes received by men doing comparable work and holding comparable positions in other industries.

What of the Future?

ONE of the most significant statements in the report of the Committee on the Design of Shops and Engine Terminals is to the effect that the maximum utilization of modern motive power cannot be obtained with inadequate engine terminals and that the more effective handling of trains on the road, improvements in grade and road-bed, double tracking, signals and dispatching, and other improvements in operation, may be in a large measure offset by delays to motive power at inadequate terminals. In preparing this report the committee did an excellent job in recommending a design which may be termed a basic design, and which, in the words of a member during the discussion, may "be worked to or from."

The report was enthusiastically and intelligently discussed, and it was not difficult to see that the mechanical department men are very much alive to the importance of modern terminals. Recognition has been taken of the fact that the changes in railroad operation during the past few years have impressed most mechanical men with the fact that modern improvements take place rapidly, so that a terminal which may have seemed adequate when built as short a time as five or ten years ago, today is to a great extent not suitable for handling the most modern locomotives.

The committee is to be commended on the preparation of a report which incited a discussion covering so many phases of the subject. It apparently has recognized the fact that the design of a modern engine terminal is gradually becoming more and more of an engineering problem. A valuable cumulative experience in the layout of terminals has resulted from the last several years' intensive operation, and it is not unreasonable to expect that the next few years will introduce developments in engine terminal design which will have a far-reaching effect on future operation and the economies that may be effected. As W. L. Bean, of the New Haven, mentioned in his discussion of the report, the introduction of such recent facilities as direct steaming may make possible economies not alone in fuel saving but in other phases of engine terminal operation that cannot be fully visualized at this time.

Trends Evident in the Car Appliance Exhibit

ONE who has surveyed the great number of appliances and details entering into car construction, which either are included in the exhibit this year for the first time or have been modified or improved since the last exhibit, cannot but be impressed with the evidence of progress during the past two years which they provide in abundance—a progress which, in some respects, is greater and which offers greater hope for the future solution of certain difficult problems of long standing than has been evident in any exhibit for some years past. This progress is not alone in changes or refinements of details, but has invaded the field of conventional design at many points which have long been regarded as having reached their ultimate development.

There is more evidence of active interest on the part of the supply companies in general car design than has been shown for many years. This field of equipment

engineering has been confined almost exclusively to the railroads themselves, and, among the railroads, almost exclusively to the Car Construction Committee's program of standardization. The activities in the commercial field which are evident this year, however, indicate a wholesome tendency to break away from precedent for the attainment of highly desirable objectives. This is evident in the body design of several types of cars, both open top and closed, as well as in trucks.

There has always been ample evidence of improvement and refinement in detail parts of these exhibits, and there is no lack of such evidence this year. These changes, of course, range all the way from slight increases in dimensions to major changes in form which merge into the more fundamental changes to which reference has just been made. Important detail parts which have been accepted with little change for many years, but which are now inadequate on modern high-capacity cars, are presented in numbers. The draft gear situation is by no means static. There is also evidence of great activity in the improvement of hand brakes. Progress is also being made in the development of steam heat connections and equipment to meet the requirements of higher train-line pressures and passenger trains of increasing length. Many other parts or details entering into car construction or equipment, including car doors and door fixtures, could also be mentioned in the large group of which those cited are merely typical.

On the whole, the exhibit of cars, car parts and appliances this year inspires great hope for acceleration toward the solution of a number of difficult rolling stock problems of long standing.

Who Are The Losers?

DURING a convention which has been so notable for the unusually keen interest displayed in the exhibits as to cause comment on the part of many of the manufacturer's representatives present, a great deal of importance should be attached to the fact that, among railroad men, many expressions of disappointment have been occasioned by the absence of the elaborate display of machine tools which has characterized previous Atlantic City conventions. Some appreciation of the use that is made of the machine tool exhibit of two years ago may be gained from the fact that over $150,000 worth of machine tools are known to have been purchased as a result of that display at Machinery Hall.

During the past two years mechanical officers have undoubtedly laid more stress on the importance of modernizing machine tool equipment than during any similar previous period, and several roads sent men to Atlantic City this year for the express purpose of investigating recent developments in machine tool design and operation in order to select equipment for replacements and additions in their shops. Two specific instances may be mentioned. One road with an authorized appropriation of $200,000 and another of approximately $400,000, all available for the purchase of machine tools, expected to make a selection at this exhibit. In both cases men from these roads were definitely assigned to the job of selecting tools at this time.

The exhibit at Atlantic City is the one exhibit appliances including shop machinery and equipment specifically adapted to all the requirements of the motive power and car departments, which may be considered national and even international in its scope. It is the one convention where the higher mechanical officers and purchasing officers have an opportunity to meet and jointly consider the products which are offered for railroad use. In addition, and of rapidly increasing importance, there is the attendance of motor transport men who, for the first time, met at Atlantic City as a division of the American Railway Association this year.

The broadening scope of mechanical and motor transport activities is making unusual demands on the time of men in these departments and is emphasizing the necessity of getting the most out of the many conventions that are devoted entirely to railroad equipment problems.

The machine tool builders are to be commended for their ambition to establish an exhibit devoted exclusively to machine tools, but there must be recognition of the fact that any exclusively machine tool exhibit will, in all probability, be local in character so far as the railroads are concerned because it will not display many tools especially adapted to railroad requirements. The large number of conventions which railroad mechanical men are called upon to attend is rapidly presenting a problem of how to cover them all to the greatest advantage and it is practically impossible for railroad men to take the time to attend the conventions and exhibits which are largely devoted to developments in industries other than their own. In several cases, expressions by mechanical officers attending this year's convention indicate that they will not attempt to attend or send representatives to such exhibits.

Through many years of constructive effort, the biennial exhibit in connection with the meetings of the Mechanical, and the Purchases and Stores Divisions at Atlantic City has created such a reputatoin for completeness and constructive value—in most of its departments at least—among railroad officers of all ranks, that its value to manufacturers of any kind of equipment having to do with motive power and rolling stock or its maintenance cannot be disputed.

Today's Program

THE Purchases and Stores Division, the Motor Transport Division, and the Association of Railway Electrical Engineers completed their programs last week. This week the Mechanical Division will devote itself largely to car subjects, except that the report of the Locomotive and Car Lighting Committee was held over from Friday and will be presented this morning.

Mechanical Division

The Mechanical Division meeting will be called to order in the Greek Temple on the Million Dollar Pier at 9:30 A. M. Daylight Saving Time, and will adjourn at 12:30 P. M. The program follows:

Address by Major Clarence Young, Director of Aeronautics, Department of Commerce.

Discussion of Reports on:

Locomotive and Car Lighting.

Safety Appliances (including report from H. A. Johnson, Director of Research in Charge of Power Brake Investigation).

Brakes and Brake Equipment.

Couplers and Draft Gears (including report from Professor W. E. Gray of Purdue University in Charge of Draft Gear Tests).

10.30 a. m.—Orchestral Concert, Entrance Hall, Million Dollar Pier.

3.30 p. m.—Orchestral Concert and Impromptu Dancing, Entrance Hall, Million Dollar Pier.

8.00 p. m.—Concert.

9.00 p. m.—Informal Dance in the Ball Room of the Million Dollar Pier. Special Features—Famous Wroes Buds Revue and Minuet; Reading Co. Seashore Band, John L. Snyder, Director.

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The Twenty-seventh Annual Convention (1894) of the American Railway Master Mechanics' Association, Congress Hall, Saratoga, N. Y.

Thirty-four Years Ago

THE photograph that is reproduced on the opposite page is one of a group of persons attending the convention of the American Railway Master Mechanics' Association which was held in the Congress Hotel at Saratoga, N. Y., in 1894, the picture having been taken on June 19. The picture was sent by F. H. McArthur, valuation engineer of the St. Louis-San Francisco, to J. W. Motherwell, of the Ashton Valve Company, and old-timers at this year's convention have taken much interest in identifying different persons in the group. Among those they have been able to identify are George Westinghouse, George J. Akers, Theodore N. Ely, John D. Lentz, Albert Ashton, Frank Barbey, James F. DeVoy, Angus Sinclair, Fitz Sargent, Joseph Wymer and Harry Nourse.

A glance at the picture is sufficient to suggest the changes of many kinds that have occurred during the last 34 years. Of course, many of those in the group have retired or died. The abundance of mustaches and beards is a reminder that masculine tastes in adorning the countenance have undergone a great transformation. The changes that have occurred in hirsute ornamentation are no more remarkable, however, than those that have been made in the headwear worn by both men and women. Several silk hats appear in the picture. A man who should wear one to the conventions now would attract a following of more boys on the boardwalk than an Italian with a monkey. The cut of the men's coats, the fact that they all wear high-top shoes, the number of cutaway coats and the prevalence of derby hats also will not escape notice. The picture illustrates in many ways the already well established fact that "times do change."

Watch presented to "Doc" Bateman

AT a meeting of the Executive Committee of the R. S. M. A., immediately following the annual meeting Saturday morning, the members of the committee presented "Doc" Bateman, the retiring president, with a handsome watch having a special movement of French manufacture and a white gold case. The presentation was made by President-elect Gilbert E. Ryder.

The Tournament of the MacBarmma Association

THE MacBarmma Club had its regular convention golf tournament and dinner at the Sea View Club on Saturday. In the morning round N. S. Reader won the prize for low gross with a fast 80, and Grant W. Spear had low net.

In the afternoon round W. L. Conwell, as usual, had low gross and gets his name inscribed on the Mallory trophy. C. C. Hubbell won low net and gets his name engraved on the Carr cup, which is awarded each year for low net in the afternoon.

The first prize for low net in Class A was won by W. L. Conwell, and the second prize by J. G. Bower.

The first prize for low net in Class B was won by J. G. Carroll, and H. C. Manchester and C. R. Ellicott tied for seocnd low net.

The first prize for low net in Class C was won by C. C. Hubbell, and the second prize by B. P. Flory.

Fred V. Green, after a distinguished service as secretary-treasurer, was elected president. C. C. Hubbell was elected vice-president; N. M. Garland, secretary-treasurer; and C. R. Elliott, a member of the Executive Committee.

Enrollment Hours

THE Enrollment Committee will be on the job at the registration booth today from 9.00 a. m. to 1.00 p. m., from 2.00 to 6.00 p. m., and from 7.00 to 8.00 p. m.

Bean and Phelps In Automobile Accident

W. L. BEAN, mechanical manager of the New Haven, his mother, Mrs. S. L. Bean, and B. P. Phelps, engineer of shop extension on the Santa Fe, were seriously injured in an automobile accident shortly after leaving Atlantic City for New Haven late Saturday afternoon. When about 40 miles from Atlantic City, a car with five people in it and under high speed, approached them from the opposite direction. Just as it neared Mr. Bean's car, one of its tires blew out and it veered to the left, crashing into the side of Will's car. Mother Bean, who is well past 70, was badly shaken up and bruised about the head and limbs. Mr. Bean had one of his legs broken below the knee and was otherwise badly bruised. Mr. Phelps suffered a broken ankle and a bad gash on his chin. One of the men in the other car was seriously injured.

Two doctors from nearby hamlets were quickly summoned and rendered first aid. A passing driver rushed Mr. Phelps and the injured man from the other car to an Atlantic City hospital, first taking measures so that the friends at the convention would be notified of the accident and take proper preparatory steps. An ambulance was sent from Atlantic City to bring in Mr. Bean and his mother.

Fortunately, no time was lost in reaching John Purcell of the Santa Fe, who regards both Mr. Phelps and Mr. Bean as "his boys" and who, of course, has been almost a member of Mrs. Bean's family. With characteristic energy, Mr. Purcell, assisted by J. E. Brown, chairman of the Enrollment Committee, took measures to insure that the very best surgical help and care would be provided.

One watching Mr. Purcell under such conditions, can understand why he is so greatly loved by the Santa Fe boys, whether now on that road or if they have ever been associated with him on it. A couple of nurses and an orderly or two attempted to block his path as he was about to enter the emergency operating room at the hospital. Pushing them aside with both his hands and breaking through with the grim determination of a football player, he exclaimed, "What! Keep me out? Why these are my boys." And thereafter, everybody in the hospital understood who was the real boss and dad of the entire bunch.

Mr. Bean's wife was immediately notified of the accident and reached Atlantic City a little after midnight, Sunday morning. The patients are now resting comfortably, considering the nature of their injuries.

The R. S. M. A. Annual Meeting

Gilbert E. Ryder and S. G. Down to head the Association during the next two years

THE annual meeting of the Railway Supply Manufacturers' Association was called to order at 11:30 Saturday morning by President W. H. S. Bateman. In his opening remarks Mr. Bateman paid tribute to all those who had worked together to make this convention and exhibit so great a success, in spite of a number of unexpected obstacles. He drew attention to the fact that when the association decided to hold this year's exhibit at Atlantic City it was influenced by the fact that the convention hall, now in the course of construction, would have been completed in time to house the convention and exhibit. The fact that the completion of the building was somewhat delayed necessitated a quick change in the plans, with the result that the new building adjoining the Pier known as Marine Hall, was erected.

He also mentioned the fact that the track exhibits, for the first time, were handled by the exhibit committee of the R. S. M. A. with the most hearty co-operation of the Reading and the Pennsylvania. These railroads also contributed to the success of the convention entertainment by sending the Reading Band, and the Keystone and Red Arrow Quartets of the Pennsylvania to Atlantic City.

Before concluding his remarks Mr. Bateman extended his thanks to the individual members of all the committees and voiced an appreciation of the compliments that have been paid by President R. H. Aishton of the American Railway Association at the three Atlantic City A. R. A. meetings as to the manner in which the R. S. M. A. is co-operating and working with the railroads. He expressed some pride in fact that the relations of the association with the American Railway Association were now probably the most cordial in the history of the organization.

Gilbert E. Ryder
President-Elect of the R. S. M. A.

Members Who Have Passed Away

After Secretary Conway had read the following list of members who have passed away since the previous meeting, the members in attendance rose and stood for a moment in silent tribute:

John R. McGinley, The Duff Manufacturing Company and Pittsburgh Screw & Bolt Company, died November 29, 1926.

William L. Jones, president, Jones & Laughlin Steel Corporation, died November 25, 1926.

Grafton Greenough, vice-president, Baldwin Locomotive Works, died July 8, 1926.

George H. Porter, railway sales manager, Graybar Electric Company, died December 7, 1926.

Edward L. Bader, mayor of Atlantic City, died January 29, 1927.

Guy E. Tripp, chairman of the board, Westinghouse Electric & Manufacturing Company, Pittsburgh, Pa., died June 14, 1927.

Judge Elbert H. Gary, chairman and chief executive officer, United States Steel Corporation, died August 15, 1927.

F. F. Fitzpatrick, president, American Locomotive Company, died November 16, 1927.

Benjamin F. Jones, Jr., chairman, Jones & Laughlin Steel Corporation, died January 1, 1928.

W. A. Housten, Joseph Dixon Crucible Company, Baltimore, Md.

Walter B. Leach, president, Hunt-Spiller Manufacturing Corporation, South Boston, Mass., died March 13, 1928.

Bruce P. Owens, vice-president, Central Valve Manufacturing Company, Chicago, died March 30, 1928.

George L. Barden, King Pneumatic Tool Company, died June 19, 1928.

District Elections

The election of the following district officers was announced:

District No. 2 (New York and New Jersey) J. E. Brown, Central Valve Manufacturing Company, and Franklin H. Smith, Gold Car Heating & Lighting Company.

District No. 3 (Pennsylvania) Charles J. Neiman, Penn Iron & Steel Company.

District No. 4 (Ohio, Indiana and Michigan) W. C. Sanders, Timken Roller Bearing Company.

District No. 7 (States west of the Mississippi River) W. C. Motter, Barco Manufacturing Company, St. Paul, Minn.

District No. 8 (Canada) Holly T. Armstrong, Montreal Locomotive Works.

Officers Elected

The following officers, presented by the nominating

committee, were unanimously elected: President, Gilbert E. Ryder, vice-president, The Superheater Company, New York; vice-president, S. G. Down, first vice-president, Westinghouse Air Brake Company, Wilmerding, Pa.

Following his induction into office Mr. Ryder expressed his appreciation of the honor that had been conferred on him and took occasion to offer congratulations to the member of the Exhibit Committee.

During the course of the meeting five past presidents of the organization were called upon for brief remarks. These were B. A. Hegeman, Jr., H. W. Frost, J. Will Johnson, Frank A. Barbey, and Frank J. Lanahan.

The following resolution was offered and accepted by unanimous vote: "Resolved, that the Railway Supply Manufacturers' Association, in annual convention assembled, direct its secretary to send Scott H. Blewitt, past president of this organization, a telegraphic message expressing its regret that he and Mrs. Blewitt are not in attendance at Atlantic City and extending to them affectionate good wishes."

Gilbert E. Ryder, President-Elect

In the election of Gilbert E. Ryder for the presidency of the Railway Supply Manufacturers' Association, the members of that organization have given recognition to one of the most enthusiastic and conscientious workers it has ever had. He has had a training that particularly fits him for his present office and, due to his long experience in the association, is in a position to serve to splendid advantage. For a number of years "Gil" Ryder has devoted a very large amount of his time to the R. S. M. A., always working for its best interests. He is an organizer by nature and much of the success of recent exhibits and conduct of the association has been due directly to his hard and constructive efforts. He has worked his way up from the ranks through various committees, on some of which he has served as chairman and has attended these conventions every year since he first came in direct contact with the railway supply field in 1908.

"Gil's" railroad experience began on the Chicago, Milwaukee & St. Paul as an apprentice soon after finishing his technical training at both the University of Wisconsin and the University of Illinois. He spent five years with the St. Paul, serving as journeyman in the shops at Dubuque, Iowa, Ottumna, Iowa, and West Milwaukee, Wis. After leaving this road he spent some time in the Fuel Testing Bureau of the Technological Branch of the United States Geological Survey. This training prepared him for his next position as deputy smoke inspector for the city of Chicago, in which capacity he came in direct contact with the problem of locomotive combustion. In his endeavor to reduce the locomotive smoke nuisance in Chicago, he was instrumental in passing on to the railroads valuable suggestions as to coal conservation. Following this he became an editor of the Railway Review at Chicago, which further broadened his experience with locomotive problems, through contact with railway mechanical department men throughout the country.

It was in 1911 that "Gil" concentrated on one detail in the design of locomotives. At that time he entered the service of The Superheater Company and became a member of the sales and service department, of which he is now the chief as a vice-president of the company. In this capacity he built up a service organization that has done much in the interest of more economical generation and use of steam on American railroads. He also organized and built up the publicity activities of The Superheater Company, contributing many articles and association papers on locomotive super-heaters.

S. G. Down
Vice-President-Elect of the R. S. M. A.

"Gill" Ryder's association activities have not been restricted to the R. S. M. A. He has been consistent in his attendance at other railway associations and has contributed in a very large measure to the development and success of their associated supply organizations. He served at one time as president of the International Railway Supply Men's Association, which exhibits in connection with the conventions of the International Railway Fuel Association. He is also a member of the American Society of Mechanical Engineers and several railway clubs.

In private life he has been directly interested in civic affairs. During the time he lived in Leonia, N. J., he served several years on the board of education of that town, and was part of the time its president. "Gil" now makes his residence in Rouken Glen, Larchmont, N. Y., where he has a beautiful home. He is a golf enthusiast of the first order, playing a good business man's game. He is a member of the following clubs: Englewood Golf Club, Englewood, N. J.; Pelham Golf Club, Pelham, N. Y.; Larchmont Yacht Club, Larchmont, N. Y.; Engineers' Club, New York; and Engineers' Club, Boston, Mass.

"Gil" has two children, a daughter, Mary Evaline, 19 years old, who is now attending Mt. Holyoke College at South Hadley Falls, Mass., and a son, Charles G., who is nine years old.

S. G. Down, Vice-President Elect

S. G. Down, first vice-president of the Westinghouse Air Brake Company and the newly elected vice-president

of the Railway Supply Manufacturers' Association, has been active in the affairs of the association for several years. As chairman of the Exhibits Committee for 1928, he was largely responsible for the success of this year's assembling of exhibits and providing for Marine Hall.

Mr. Down, originally a Detroiter, has in recent years become an enthusiastic Pittsburgher. After five years' service with the Michigan Central at Detroit in various capacities in the mechanical department, he forsook the charms of railroading and lured by the siren's call of gold upon its discovery in Alaska, set out to obtain a fortune by a faster route. Leaving Detroit, he organized the first party that went down the Mackenzie river by a steamboat, which was built at Athabasca Landing. After reaching the mouth of the river, he spent some time in prospecting along the coast and then rushed to the Klondike region. Later on he was among the early prospectors at Cape Nome.

In Supply Field Since 1902

Fortune came too slowly, and so, after three years of life in Alaska, Mr. Down returned to the Michigan Central in the capacity of air brake instructor. In 1902 he gave up railroad life and went with the Westinghouse Air Brake Company. At first he was in charge of their instruction car, later on he became mechanical expert at Chicago and was next transferred to San Francisco as district engineer. While on the west coast, he was largely responsible for the organization of the Westinghouse Pacific Coast Brake Company, of which he became manager.

In 1921 he was called to Wilmerding to take up the responsibilities of general sales manager. In 1919 he made a trip to the Orient and afterwards made two other trips to the Far East. In connection with these trips, he established facilities for the manufacture of air brakes in Japan under license from the Westinghouse Air Brake Company. Other things which he accomplished in the Orient included work which led to the adoption of the air brake in China. Australia and other countries were visited in connection with his activities. In 1924 he spent some time in South America visiting all countries on both the east and west coasts, as a result of which marked improvements took place in air brake developments in these countries.

Since 1924 Mr. Down has been first vice-president of the Westinghouse Air Brake Company and, in addition to his position as vice-president, also became one of the directors of the company. Of the other Westinghouse associated companies, he is president of the American Brake Company, the Westinghouse Friction Gear Company, the Safety Car Devices Company, and the Westinghouse Pacific Coast Brake Company. He is also vice-president of the National Brake & Electric Company and vice-president of the Westinghouse Traction Brake Company.

Business and Club Affiliations

In spite of his many activities in the affairs of the Westinghouse companies, he has found time to take an active part in the work of the Pittsburgh Chamber of Commerce and is a member of the Dusquesne Club, Pittsburgh Athletic Club, Keystone Athletic Club, and also finds time for recreation at the Long View Country Club, Pittsburgh Country Club, and Edgewood Country Club of which clubs he is a member. He is also a member of the Engineers' Club of New York and the Union League of Chicago.

Lost and Found

LOST—A platinum lavalier with diamond pendant and valued as much for sentiment as for pecuniary reasons, has been lost between the Shelburne Hotel and Young's Million Dollar Pier. A suitable reward will be offered for the return of this lavalier to the *Railway Age*, Booth No. 1-3.

LOST—Badge No. 8740. Return to Registration Booth.

FOUND—Umbrella and gentleman's top coat. Call at office of secretary.

FOUND—Lady's compact. Call at secretary's office.

FOUND—Lady's pin. Call at secretary's office.

Sacred Concert on Pier Proves a Success

THE experiment of holding the sacred concert in the Entrance Hall of the Million Dollar Pier proved a great success. There was a large attendance, which showed real appreciation of the program by calling for many encores.

Mrs. Edward Laterman, who as Miss Mary Currie used to sing so acceptably at the Saratoga conventions, greatly pleased the audience with her deep, rich voice and well chosen selections. The Pennsylvania Red Arrow Quartette fully justified its reputation and was heartily appreciated. The Nicoletta Symphonia Trio played most effectively several appropriate pieces. Orchestral numbers were given by Fry's Million Dollar Orchestra.

The committee in charge is to be congratulated and included H. O. Fettinger, chairman; H. E. Passmore, vice-chairman; E. C. Daniels, G. L. Gordon, O. C. Hayward, C. G. Learned, E. Laterman, J. R. New, L. R. Pyle, R. R. Root, W. S. Rose, S. A. Witt and C. Beaumont.

Registration Figures

THE table shows the registration at 3.30 Sunday afternoon, as compared to that at the same time in previous years.

The car week of the Mechanical Division is ordinarily better attended than the locomotive week. The probabilities are, therefore, that the registration figures after today's totals have been compiled will surpass those of two years ago and establish a new high record. It will be noted that the falling off this year has been in the number of supply men—458 less—and that there has been an increase in most of the other classifications. These figures do not, of course, include several hundred card passes given to railroad men of non-official classification who attend the convention.

	1920	1922	1924	1926	1928
Mechanical, Division V	707	637	956	1129	1089
Purchases and Stores, Division VI	140	49	176	450	485
Motor Transport, Division VIII					56
Railroad guests					501
Railroad ladies	569	526	867	1000	1077
Supply men	2262	2056	2467	2944	2486
Supply ladies	634	501	648	690	690
Special guests	441	407	651	615	24
Complimentary					299
TOTAL	4753	4176	5765	6828	6707

Rail Motor Cars Favored By Executives

THE track exhibit this year contains many striking features. Not the least important of these are the rail motor cars which were described in the *Daily* of Saturday, June 23. Lesley C. Paul of the Westinghouse Electric & Manufacturing Company, has been making an inquiry of prominent railroad men as to the results of their experiences with rail motor cars and what they believe to be their future possibilities. Among the replies that he has received are the following from Ralph Budd, president of the Great Northern; F. H. Hardin, assistant to the president of the New York Central; C. S. Millard, general manager of the Big Four; and F. M. Falck, general manager of the Reading.

Ralph Budd, president of the Great Northern, says:

"The continuing decline in local passenger earnings is now quite generally acknowledged to be due to the almost universal use of the automobile for short trips. Railway companies have used two methods for meeting the situation:

"*First.* Some of them have increased their service and reduced their rates on the theory that people would return to railway travel if rates were lower. My observation is that this method has been unsuccessful and is costing the railways that are pursuing it a great deal of money.

"*Second.* Some railways have sought to remove unprofitable local passenger trains, wherever it could be done, on the theory that the lack of patronage is conclusive evidence of the preference of the public for other means of local transportation. These railways have also, wherever possible, substituted more economical and smaller units of transportation for those essential local passenger runs which could not be discontinued.

"The gas-electric rail car is one of the means used to this end, and the motor bus on the highway is another. The Great Northern has in use 25 gas-electric cars, which make nearly 1,500,000 train miles per year. The gas-electric car, of course, has a good deal of the inflexibility inherent in railway service, because it is confined to the track and stops at railway stations which are on railway right-of-way, and therefore some distance from stores, hotels, residences, etc. I do not think that the use of gas-electric rail cars will attract or hold any considerable travel to the railways, but where they afford appropriate accommodations they will reduce the cost of operating such passenger train service as must be maintained for public convenience.

"I think the use of gas-electric rail cars will be increased, because I believe more of the railways will come to believe that the only means for meeting their greatly reduced passenger revenue is by decreasing the local service and providing such as must be maintained in the most economical manner rather than by attempting to recover the loss by maintaining unprofitable train service and lowering rates."

F. H. Hardin, assistant to the president, New York Central, replied as follows:

"The New York Central Railroad has at present in service 15 cars and an additional 10 on order not yet delivered. In addition the New York Central System Lines have 12 cars now in service.

"The use of these cars is the result of the falling off of passenger traffic on certain branch line territories, with the result that the operation of steam trains has become in these days very expensive. It has, therefore, been found possible to meet the existing service by the introduction of the motor rail car, which has resulted in most cases in a material saving in operation.

"The cars now in use are not uniform in design, but vary in accordance with service requirements. Inasmuch as these requirements vary to a considerable extent, decision to operate a rail motor car is based on careful analysis of each particular situation.

"Up to date the operation of these cars has been satisfactory."

C. S. Millard, general manager, Cleveland, Cincinnati, Chicago and St. Louis, says:

"The experience we have had on the Big Four in the operation of gas-electric motor cars for handling branch line passenger traffic and local passenger traffic on main lines has resulted in a material saving in operation. The cost of operating gas-electric cars is only 67 per cent of the cost of steam service.

"We have not been able to increase the volume of traffic on the local trains for the reason that the private automobile and bus line competition is very strong, and there has been a gradual decrease in local traffic, not only in the territory served by the Big Four, but generally throughout the country, therefore it behooves the operating officers to reduce the cost of operation to offset this reduction in revenue. This can be done by the use of motor cars to a considerable extent.

"In branch line territory where the highways are not well developed, undoubtedly the use of motor cars results in the handling of the traffic at a reduced cost, thereby obviously resulting in an increase in the net income, even though additional traffic is not obtained.

"At the present time I may say that the gas-electric cars are very dependable, our experience being that they have operated 87 per cent of their potential mileage.

"In my opinion, the future is very bright for the extension of this service, particularly on branch lines."

F. M. Falck, general manager, Reading Company, says:

"Gas-electric rail car operation on the Reading lines was inaugurated in 1925, by the purchase of one car for use on the Trenton Branch, operating between Trenton and Trenton Junction, a distance of 3.7 miles, and operating twenty-one round trips each twenty-four hours.

"In 1927, three additional gas-electric cars were purchased, operating all local service between Trenton Junction and Bound Brook, a distance of twenty-seven miles, combined with the Trenton Branch Service.

"These cars have been in successful operation in lieu of all local steam service and have been operating with three cars and a spare, an aggregate of between fourteen and fifteen thousand miles per month.

"Two additional cars of the multiple power plant type are on order and will be delivered about July 1, for use between Wilmington and Reading, a distance of sixty miles, and the Reading Company has in contemplation further extension of this class of service on various branch lines.

"The substitution of this equipment for steam service has resulted in very material saving in operating costs without reduction in service.

"The substitution of this class of equipment has been commented upon favorably by our patrons."

With this preponderence of expression in favor of the gas-electric car surely there is hope that the white elephant may do the unbelievable—change his color and his temperament and become a real help to the "big show."

A healthy railroad makes a healthy community and stimulates all business and industry. Our nation depends on the railroads.

The Baldwin Locomotive Works' Plant in Philadelphia as it Appeared in 1913

Airplane View of the Baldwin Locomotive Works' Plant at Eddystone Taken Before the New Office Building was Erected

Baldwin Ceremonies at Eddystone

Conventionites cordially invited to participate next Thursday in this notable occasion

EXERCISES will be held at the Baldwin Locomotive Works plant at Eddystone, Pa., next Thursday morning, June 28, commemorating the transfer of the Baldwin Locomotive Works from Philadelphia to Eddystone. President Vauclain has extended a cordial invitation to those attending the Atlantic City convention to be present. A special train will leave Atlantic City at 8.30 a. m. standard time, going direct to Baldwin, Pa. Those who wish to take advantage of this invitation are requested to leave their names at the Baldwin booth on the Million Dollar Pier, No. 625. Transportation will be provided for the guests.

The new Administration building at Eddystone is within a few hundred feet of Baldwin station. A huge grandstand, seating close upon five thousand guests, is being erected on the broad plaza directly in front of the main entrance to the eight-story Administration building. In the center of this plaza will be erected a replica of the bronze statue of Matthias W. Baldwin, the founder, which now stands on the north plaza of the City Hall, Philadelphia.

The Program

The committee in charge of the transfer ceremonies is composed of Samuel M. Vauclain, president of the works, the board of directors of the Baldwin Locomotive Works, and the company's officers.

Promptly at 11 o'clock, the introductory remarks will be made by President Vauclain who will present as the principal speaker for the occasion Secretary of Labor Davis, and also the Hon. Albert Dutton MacDade, judge of the Delaware County courts. Following the ceremonies, the invited guests will be shown through the new building and also taken on inspection tours of the plant.

The Administration building, which is one of the most unique and, at the same time, one of the most complete office buildings of its kind in the United States, is in the form of a Greek Cross, affording daylight in every part of the building. It is eight stories in height and from the top floor a magnificent view of all that part of Delaware County is to be had, together with a magnificent view of western New Jersey and the Delaware river.

The building will house all the operating departments of the works, including the domestic and foreign sales departments, the purchasing department, and the works accounting and business staffs. On the top floor will be office rooms for President Vauclain and the vice-presidents and directors.

While all the operating departments of the Baldwin Locomotive Works will be transferred to the new building at Eddystone, the works will forever remain a Philadelphia institution, as it has been for the past 97 years. To continue it as a distinctly Philadelphia institution, the principal executive offices will be maintained at Broad and Walnut streets, in the New Philadelphia-Fidelity building. In the Philadelphia headquarters will be the offices of President Vauclain and the vice-presidents and also the directors conference and board rooms.

History of the Plant

The Baldwin Locomotive Works were established in 1831 by Matthias W. Baldwin, who in that year built a small locomotive for exhibition purposes, and also received an order for a standard gage locomotive from the Philadelphia, Germantown & Norristown Railroad. This locomotive, the "Old Ironsides," was completed and successfully placed in service in November, 1832. It was built in a small shop in Lodge Alley, near Eighth and Market streets.

In 1835, Mr. Baldwin moved into a new shop located at Broad and Hamilton streets. This was part of the site of the Philadelphia plant which is now being closed with the transfer of the works to Eddystone, Pa.

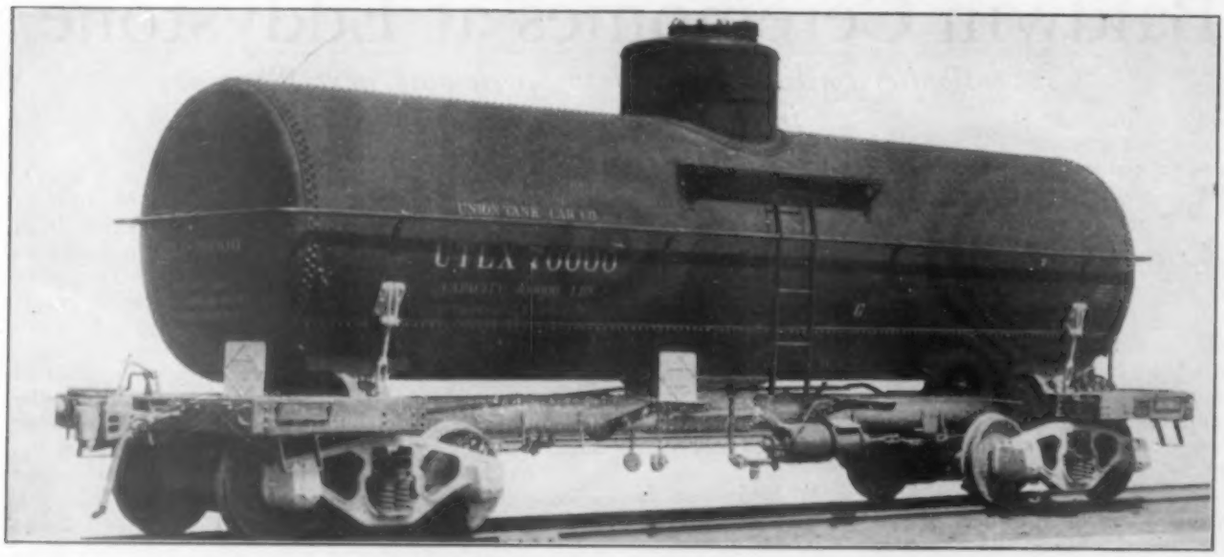
The business increased steadily and additional ground was acquired and shops erected, as necessary. In 1873, the plant was enlarged with the acquisition of the old Norris Locomotive Works, whose shops were located on Buttonwood west of Seventeenth street, within a short distance of the Baldwin shops.

In 1906, a tract of 184 acres was purchased at Eddystone, Pa., about 12 miles from Philadelphia and adjacent to the manufacturing city of Chester. Here extensive foundries and blacksmith shops were erected. This was the beginning of the recently completed transfer of the plant from Philadelphia to Eddystone. The Eddystone plant has grown until it now comprises a tract of 606 acres, on which shop buildings of the most modern type, covering 110 acres of ground, have been erected. The plant has immediate track connection with three important railroads—the Pennsylvania, the Baltimore & Ohio, and the Reading—and is provided with a fully equipped dock located on tide water, from which locomotives can be loaded on sea-going vessels for shipments to any port in the world. The majority of the locomotives built for export are now shipped completely erected.

The Baldwin Locomotive Works continued as an individual partnership until July 1, 1909, when it was incorporated as Baldwin Locomotive Works under the laws of the State of Pennsylvania. On July 1, 1911, the entire property owned by Baldwin Locomotive Works was sold to a new corporation known as the Philadelphia Locomotive Works, which was immediately reorganized as The Baldwin Locomotive Works. This is a public joint stock company, organized under the laws of Pennsylvania and capitalized at $40,000,000, ($20,000,000 cumulative preferred stock and $20,000,000 common stock).

Mention can be made of only a few of the men whose energy and genius has contributed toward the growth of the works and the development of the American locomotive. Apart from Matthias W. Baldwin, the founder, mention should be made of Asa Whitney, Matthew Baird, George Burham, Chas. T. Parry, Edward H. Williams, William P. Henszey, John H. Converse, William L. Austin, Alba B. Johnson, and last but by no means least, Samuel M. Vauclain, the present executive head, to whose energy and ability the expansion of the works during recent years has been chiefly due.

The present culmination of the art of locomotive building as practiced at these Works, is seen in Baldwin locomotive number 60,000, which is included among the track exhibits at this convention.



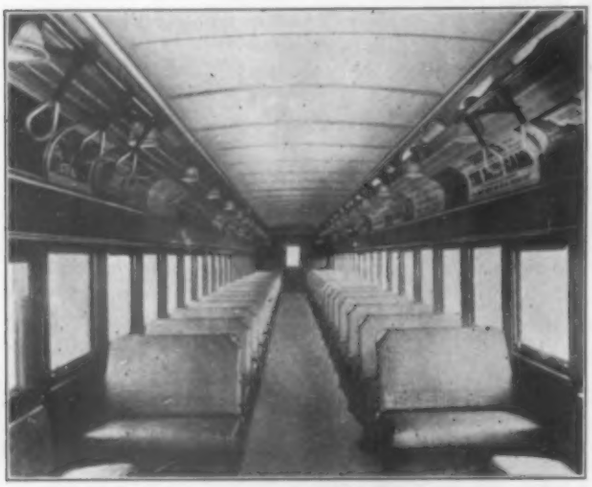
Tubular Underframe Tank Car Built at the Whiting, Ind., Shops of the Union Tank Car Company

Freight and Passenger Car Exhibits

Freight cars on track exhibit have many unusual features—— few, but interesting passenger cars

THE exhibits of passenger and freight cars this year are, with one exception, shown on the tracks of the Reading Terminal at Atlantic and Arkansas avenues.

The freight cars exhibited include two refrigerator cars—one of which is of the iceless type—a depressed center platform car with cast-steel frame and body, a 65-ft. gondola, a tank car with tubular center construction, two hopper cars containing new features of design, dump cars of several types, two demonstration cars, and a number of other interesting freight cars of box and gondola types. The Wine 70-ton hopper car contains so many new features that it is described in a separate article.



Illinois Central Light-weight Suburban Car in Which Aluminum Is Used Extensively

The only freight car shown on the tracks of the Pennsylvania Railroad at Atlantic avenue, between Tennessee and South Carolina avenues, is a container car.

The passenger car exhibit is limited, but includes an Illinois Central suburban car in which extensive use of aluminum has been made in roof construction and other details, also an articulated car, such as is used in New York City subway service.

In addition to freight and passenger cars, a number of self-propelled motor cars are shown on the tracks at both the Reading and Pennsylvania terminals. These cars were described in the Daily Edition of the *Railway Age,* Saturday, June 23.

Illinois Central Car Uses Aluminum

Illinois Central trailer car No. 1334 is shown at the Reading Terminal. This car was built in March, 1924, for operation in steam trains and was converted to an electric multiple-unit car in September, 1924, at which time it was repainted. The car, including the roof, was again repainted in May, 1928. This car is of unusually light weight obtained by the use of aluminum sheets for roof, interior sheating, doors, conduit, junction boxes, and miscellaneous parts and fittings. The saving in weight on two-car Illinois Central units by the use of aluminum is over 15,000 lb.

Articulated Passenger Car Unit for New York Rapid Transit Corporation

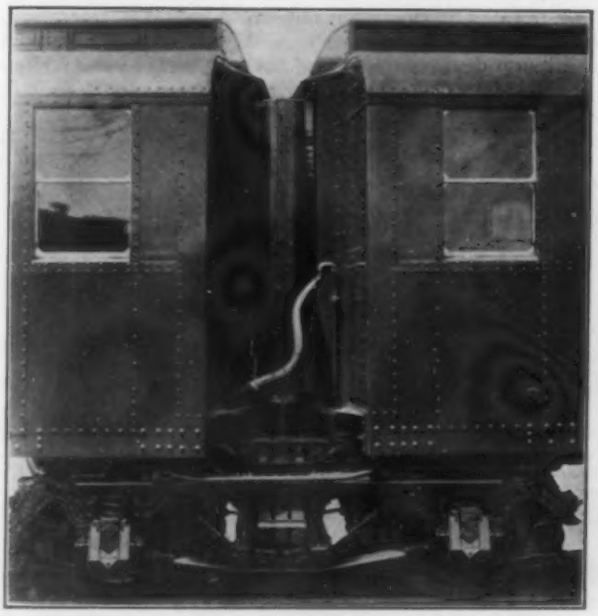
The articulated unit shown, 71 of which are in service on the New York Rapid Transit Corporation's B. M. T. Lines and 50 additional now being built and delivered by the Pressed Steel Car Company, consists of three passenger car bodies supported upon four trucks, the adjacent ends of each two bodies being supported upon one truck. The length over buffers is 137 ft., width over side sills 9 ft. 9 in. and height 12 ft. 1¾ in.

Tubular Underframe Tank Car

A special tubular underframe tank car, built at the

Union Tank Car Company's shop, Whiting, Ind., and placed in service in January, 1928, is one of the interesting parts of the track exhibit. This is the second car of this particular design, the first one having been placed in service in June, 1927, and reported as giving satisfactory service. The car is a Class III tank with a nominal capacity of 10,000 gal.

The underframe consists essentially of three pieces: namely, two steel end castings, each of which is a combination of body bolster, draft sills and striking plate, riveted to a single tubular section, the outside diameter of which is 12¾ in., the length, 25 ft. 6 in., and the thickness, ⅞ in. A center-anchorage casting is riveted to an auxiliary center casting, which in turn is riveted to the bottom of the tubular section and permits easy removal of the tank from the underframe without cutting the tank anchor rivets.



Articulated Portion and Connecting Truck of New York Rapid Transit Car (B. M. T.)

The outlet valve is a positive-seating, self-locking type, integral with the anchor casting and having an outlet on each side of the center sill. This eliminates the projection below the bottom of the underframe. A sump is also provided in this anchor casting to permit unloading through the dome.

Another feature is the elimination of the tank bands by riveting castings directly to the tank shell over the body bolsters, through which the tank is securely fastended in place by means of short bolts and turnbuckles.

The brake rigging brackets and carriers and the running board attachments are riveted directly to the tubular section. The car is equipped with Dalman 55-ton trucks. The tubular section center sill has been patented and the outlet valve patent has been applied for.

Carnegie 65-Ft. Gondola

The Carnegie Steel Company is exhibiting an all-steel gondola car of unusual length, designed for handling long pieces of steel in mill lengths. On account of its remarkable dimensions and construction features, the car is attracting much attention. A full description of the car was given in the *Railway Mechanical Engineer*, April, 1928.

Iceless Refrigerator Car

The Safety Refrigeration, Inc., a subsidiary of the Safety Car Heating & Lighting Company, is exhibiting an iceless refrigerator car which is one of a number recently built for the Atlantic Coast Fisheries Company. On account of the unusual method of refrigeration, this car is attracting much attention from those interested in this type of equipment. A complete description of the car will be found in the February 18, 1928, issue of the *Railway Age*.

North American Despatch Refrigerator Car

This is a 40-ton double-sheated refrigerator car with steel under-frame and wooden superstructure. The under-frame is composed of two built-up center sills with 5/16 in. web plates. The side sills are 5 in. Z-bars and the end sills are 9 in. channels.

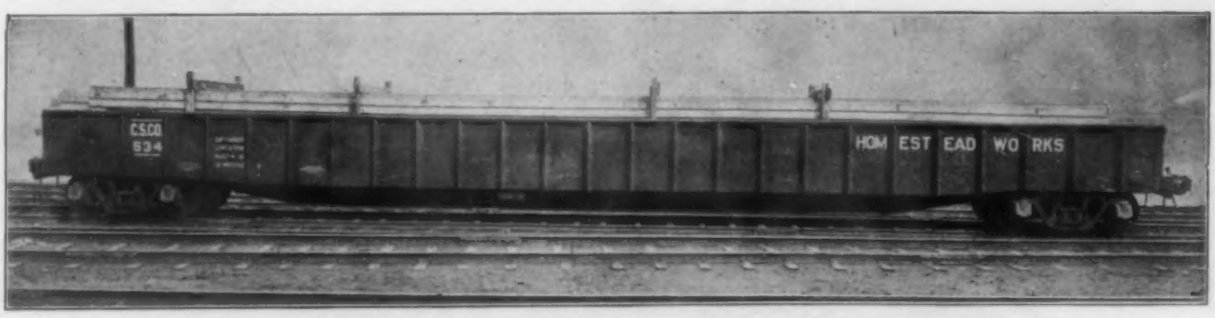
The cars have Equipco metal bulkheads and ice grates, and racks at each end, also Winter's divided basket-type ice receptacles, floor pans, Ureco well traps and Equipco well-trap extensions.

The doors are hung with Ureco self-locking hinges, and fitted throughout with Laflare door insulation. Other specialties used include Westinghouse air brakes with leadized steel pipe, Konker hand brakes made by Midway Railway Equipment Company, and Irving safety tread brake steps.

Koppel Air Dump Car

The Pressed Steel Car Company is exhibiting one of its recently improved designs of all-steel 100,000 lb., 30-cu.-yd., automatic rolling-trunnion air dump cars, built by its subsidiary, the Koppel Industrial Car and Equipment Company, Koppel, Pa.

The design of this car is a distinct departure from generally accepted practices for such equipment and provides great strength with low weight, while maintaining complete flexibility.



Carnegie Steel Company 65-ft. Gondola for Shipping Long Material in Single Loads

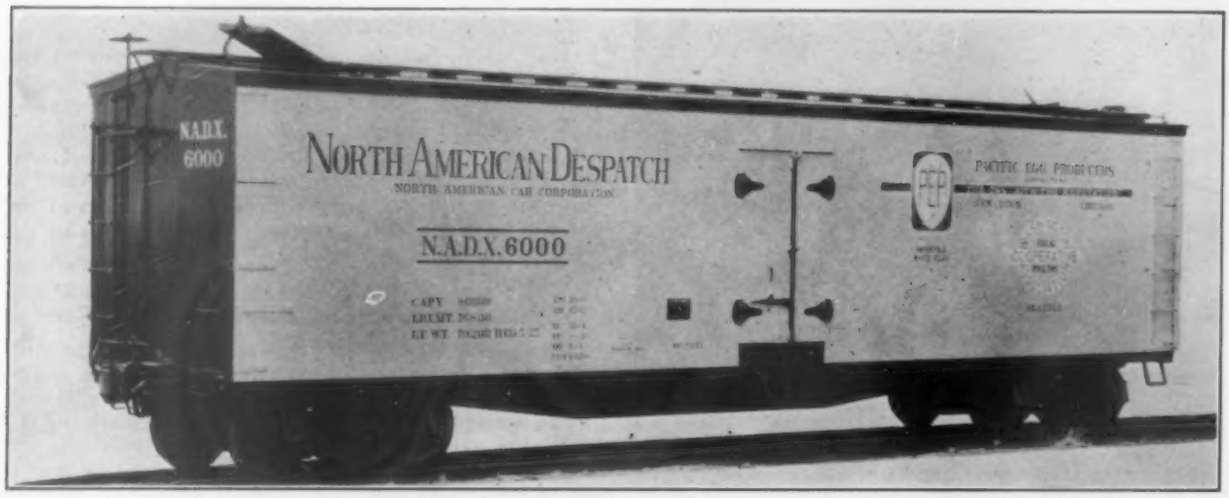
This is a low-height air dump car with drop doors, for right or left operation as desired, is known as Class RTD-30 and weighs 66,000 lb.

A brief summary of the specifications follows:

Length inside of body, top	34 ft.	0	in.
Length inside of body, bottom	32 ft.	4	in.
Width inside of body, top	9 ft.	3	in.
Width inside of body, bottom	8 ft.	10½	in.
Depth inside of body	2 ft.	8½	in.
Length over striking plates	38 ft.	4	in.
Width overall	10 ft.	3⅞	in.
Height overall	7 ft.	9 9/16	in.
Top of rail to center of couplers	2 ft.	10½	in.
Top of rail to top of floor	5 ft.	13/16	in.
Center to center of trucks	32 ft.	10	in.
Truck wheel base	5 ft.	6	in.
Dumping angle of body	45	deg.	
Wheels, 33" A. R. A. chilled iron	750	lb.	
Journals	5½	by 10	in.

In normal position, the direct-bearing surface between the body members and the underframe members extends 25 in. on either side of the longitudinal center line of car and with the application of air in the lifting cylinders the car body rolls from a point 25 in. from the center line of the car until the upper stops located at the end of these bolsters and diaphragms engage the lower turning seats attached to the underframe, thus providing the dumping of the car to a 45-deg. angle of discharge by the minimum volume of air capacity. This construction permits an operation free from shocks of operation.

Another novel feature embodied is an interlocking cast steel stop device located just back of each of the underframe bolsters, designed to prevent movement of body—



North American Despatch Refrigerator Car for Egg Service. Built by the Pressed Steel Car Company

A novel feature of this design is that the entire weight of the car body and lading is carried in stable equilibrium directly on the center sills without the use of trunnions for this purpose. This is accomplished by rolling diaphragms built into the bolster constructions located centrally on truck centers and by four rolling diaphragms one located at each crossbearer supporting the air cylinders.

transverse and longitudinal—arising from rough handling in trains or yards, thus preventing damage to the piston rods connecting the cylinders to the body proper, and to other parts.

Differential and Clark Dump Cars

The Differential Steel Car Company is showing three dump cars. One of these is of 20 yd., or 80,000 lb.,

Iceless Refrigerator Car Used to Transport Fish to Southern Points

capacity, and weighs about 50,000 lb. A second car is of 30 yd., or 120,000 lb., capacity, and weighs 76,300 lb. The third car is of 50 yd., or 150,000 lb., capacity, and weighs 94,000 lb.

The Clark Car Company is showing one of its dump cars which has had several years of hard service.

Symington Demonstration Car

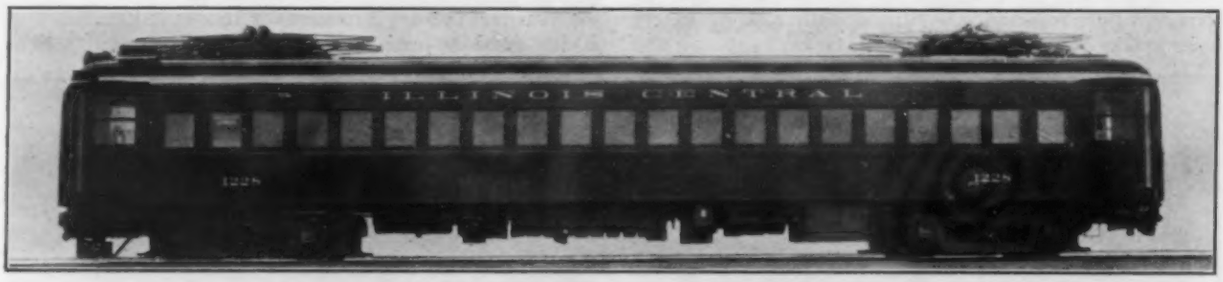
The Symington Company is showing on the exhibition tracks a demonstration car, built by the American Car & Foundry Company, which carries a long list of well-known specialties sold by this and other companies, full credit for which is insured by the striking lettering plan followed in the painting of the car.

The Symington specialties include the Farlow horizontal yoke draft attachments, the Symington swivel-butt couplers and the increased-spring-capacity double-truss side frames.

One end of the car is equipped with the Union centering device and the other with a new type of striking casting designed by The Symington Company, which provides an integral structure with carrier and striking blocks vertically adjustable for proper coupler height and top clearance.

The trucks are standard for 55-ton cars, the spring groups being of 89,000 lb. capacity, secured by four double-coil springs and two outer coils placed on the spring plank, arranged in the well-known H shape characteristic of this manufacturer's solution of the increased spring capacity problem.

An interesting feature of this car is the provision of glass windows in the floor at each end so that the service



Illinois Central Suburban Electric Motor Car With Aluminum Roof

Koppel 30-cu. yd. Automatic Air Dump Car Shown by the Pressed Steel Car Company

Car Used to Demonstrate Symington and Other Specialties

movements and performance of couplers and attachments may be conveniently observed.

Specialties, other than Symington, which are used on this car include the following: Waugh-Gould draft gear; Davis one-wear wheels; Woods side-bearings; Union centering device; Carmer coupler rolls; Drednaught ends; Murphy radial roof; Youngstown steel side door; Schaefer brake hanger, rods, levers and lever connections; Creco brake beams, brake-beam supports and bottom connection guards; Mobile brake-beam hanger supports; Western angle-cock holders; Railway Devices pipe clamps; Unitary retaining valve holder; and Interlox hand-brake ratchet pawl and floor clamps.

Klasing Designs a Demonstration and Instruction Car

This is a box car designed for demonstration and instruction purposes and is equipped with Klasing safety hand brakes of both wheel and lever types.

Reading Cars

The Reading Company is showing a depressed-center flat car of unusual capacity and design. This car has a capacity of 275,000 lb., distributed over 10 ft. at the center. The car weighs 104,200 lb., and is carried on six-wheel Commonwealth equalized trucks having 6½-in. by 12-in. journals, and fitted with clasp brakes. The entire frame is a one-piece steel casting made by the Commonwealth Steel Company. The car is 52 ft. 10 in. over striking plates and the depressed center is 21 ft. long. The trucks are spaced on 39-ft. centers and the car is capable of passing curves of 100-ft. radius. Five of these cars, which are designed for shipment of transformers and other large machinery, have been built at the Reading shops.

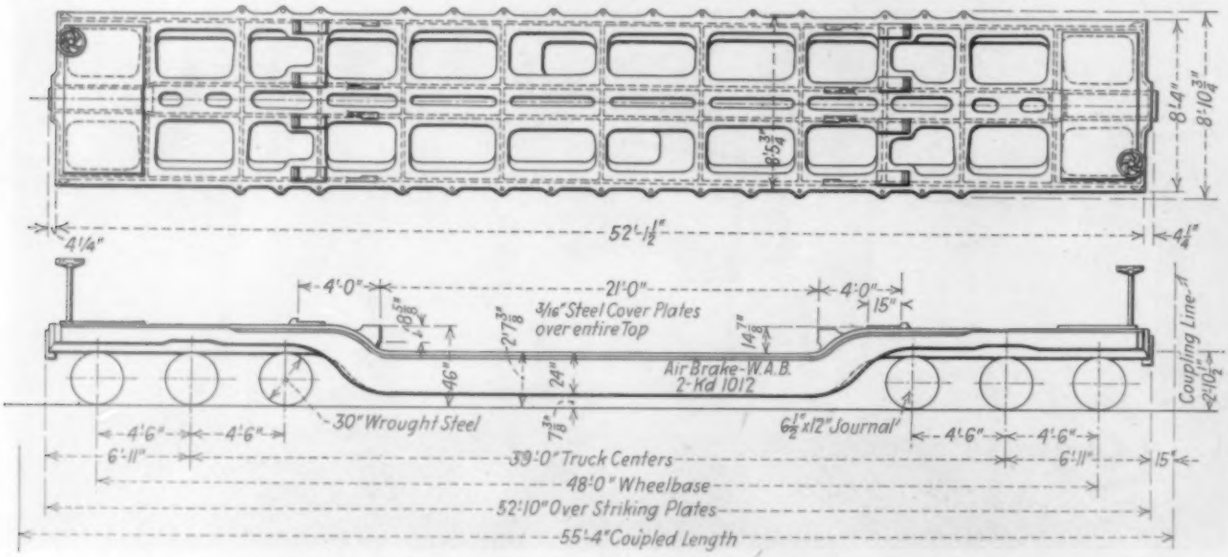
Placed on this flat car for exhibit are four Taylor flexible trucks. Two of these trucks have 6-in. by 11-in. journals and two are duplicates of those used on Reading 70-ton gondola cars, while the other two are of a new

Car Showing Klasing Safety Hand Brakes of Wheel and Lever Types

In addition to Klasing hand brakes, the car is equipped with a number of specialties, including the following: Murphy radial all-steel flexible roof, Drednaught steel ends, Woods side bearings, Creco brake beams with third-point support and bottom rod guide; Mudge pipe clamps and angle cock holders; Buffalo brake beams, self-locking pins, knuckle pins and draft key locks, and Kass brake steps.

pattern, 6½-in. by 12-in. journals, and are being used on new large capacity tenders.

In addition to the depressed-center flat car, the Reading has placed adjacent thereto, one of it's standard 50-ton, single sheathed box cars, weighing 45,800 lb., and having a load limit of 123,200 lb. The inside dimensions of the car are 40 ft. 6 in. long, 8 ft. 6 in. wide and 9 ft. high, giving a space of 3,098-cu.-ft. capacity.



Reading Depressed Center 275,000-lb. Capacity Flat Car with One-piece Commonwealth Cast Steel Frame

Enterprise Cars

The Enterprise Railway Equipment Company is represented by three cars of steel construction of the hopper, gondola and ballast types. The all-steel hopper car has 6-in. by 11-in. axles, is of A. R. A. height and length over striking castings, and incorporates three hoppers. The car has A. R. A. type center sills and Enterprise side construction, with inside stakes. The doors are equipped with Enterprise Type D door-operating mechanism.

The all-steel gondola car has 5½-in. by 10-in. journals and is of the general service type. There are 16 floor doors operated in sections of four doors each from the corners of the car. These provide for approximately complete discharge of the load to the sides of the track. The door-operating mechanism is of the self-locking type

Koppel Air Dump Car in Dumping Position

which, it is claimed, provides uniform action and positive locking for the doors in closed position.

The third car is a multiple-service gondola ballast car with 5½-in. by 10-in. journals. The design incorporates A. R. A. center sill construction and provides a car suitable either for ballasting or for revenue service, in which gondola cars are usually employed. The car is formed with V-shaped hoppers on each side of the center sill and extending between the trucks. The discharge doors provide for placement of the load in the exact quantities required, either to the center of the truck, or, simultaneously to center and one side, or center and both sides. Removeable boards are used to form the ends of the hopper section when the car is used in ballast service, with provision at the ends for storage of these doors when the car is used in revenue gondola service.

New York Central Automobile Car

While not strictly a part of the track exhibit, the N. Y. C. steel automobile car, used to house the Electro-Motive Company's exhibit, is worthy of note. The car has an end door, is of 110,000 lb. capacity, weighs 52,200 lb. and has a load-limit of 116,800 lb. The inside dimensions are: Length, 40 ft. 6 in.; width, 8 ft. 9 in.; and height 10 ft. giving a cubic capacity of 3,544 cu. ft.

Pennsylvania Container Car

On the tracks at the Pennsylvania terminal will be found a container car, a type of freight equipment which is being increasingly used. The complete unit consists of a flat car on which four steel containers have been mounted.

Locomotives In Need of Repairs on Class I Roads

LOCOMOTIVES in need of repairs on Class I railroads on June 1 totaled 8,421 or 14.1 per cent of the number on line, according to reports filed by the carriers with the Car Service Division of the American Railway Association.

This was a decrease of 682 locomotives compared with the number in need of such repairs on May 15, at which time there were 9,103 or 15.2 per cent.

Locomotives in need of classified repairs on June 1 totaled 4,672 or 7.8 per cent, a decrease of 342 compared with May 15, while 3,749 or 6.3 per cent were in need of running repairs, a decrease of 340 compared with the number in need of such repairs on May 15.

Class I railroads on June 1 had 7,161 serviceable locomotives in storage as compared with 6,912 on May 15.

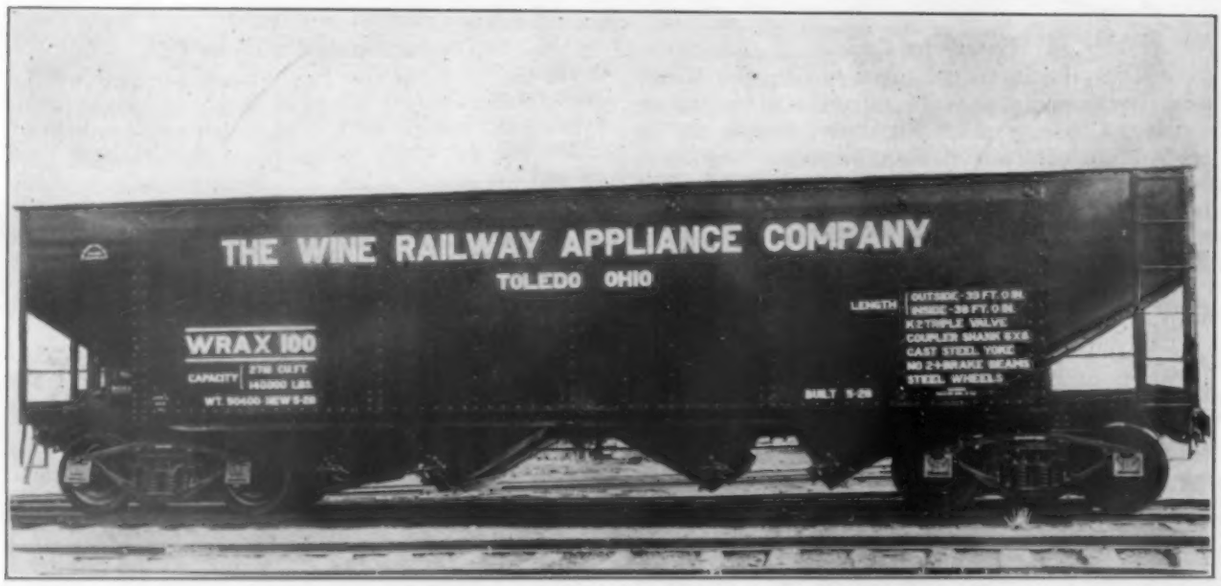
Conclude Second Meeting of Motor Transport Division

WITH a meeting open to representatives of manufacturing and other organizations, the Motor Transport Division on Saturday concluded its three-day convention at the Traymore. The meeting was attended by a large number of railway officers and automotive manufacturers, the largest at any of the sessions of the convention.

Chairman A. P. Russell announced at the opening of the session that it had been called in furtherance of one of the purposes of the division, namely, to co-operate to the fullest extent with all other organizations in the motor transport field. The subject of regulation of interstate motor coach lines was discussed at some length, the position on this question held by the manufacturers of automotive equipment being outlined by A. J. Brosseau, president of the Mack International Motor Truck Corporation. Chairman Russell then described the attitude of the railways toward motor coach regulation, and expressed confidence that the matter would be settled to the satisfaction of all interests at an early date.

The sizes and capacities of rail motor cars was then discussed by a number of railway men and manufacturers. C. S. Sale, president of the American Car and Foundry Motors Company, and Mr. Brosseau raised the question why the railways do not exhibit more interest in small rail motor cars. J. G. Drew (M. P.), R. L. Fairbairn (C. N.) and G. W. Lupton (A. T. & S. F.) in reply stated that large capacities were usually necessitated by the traffic demands in most localities where rail cars are now being used. Rail motor cars with multiple power units were also discussed at some length.

Following a series of statements by railway and manufacturer's representatives assuring the general desire on the part of both to work toward the full development of motor transportation co-ordinated with railway transportation, the meeting adjourned.

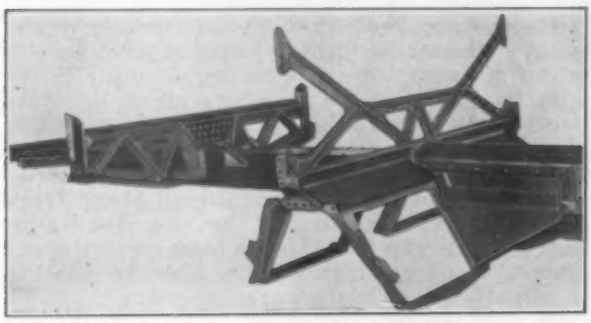


A New Design of 70-ton Hopper Car Having a High Ratio of Revenue Load to Total Weight

The Wine 70-Ton Hopper Car

High capacity and low center of gravity car of interesting design——Steel castings used for many important parts

AMONG the interesting track exhibits of new equipment at the Reading Terminal is an improved hopper car designed by The Wine Railway Appliance Company, Toledo, Ohio, and built by the Ralston Steel Car Company, Columbus, Ohio. This car is designed to meet present day operating conditions of increased tonnage at higher speeds. The purpose of the design is to provide: (1) A high ratio of revenue load to total weight; (2) low center of gravity; (3) maximum



Buckeye Cast Steel Body Bolster, Diaphragm and Hopper Door Frames as Assembled on Underframe of the 70-ton Hopper Car

width and minimum length for its capacity; (4) flexibility of design to permit various capacities without change in any essential detail; (5) use of accepted car specialties of various manufacturers; (6) liberal use of cast steel and rolled sections, thereby greatly reducing the number of pressed steel parts, a concentration of metal and reduced surface exposed to the weakening effect of corrosion; (7) suitability for handling the very small sizes of hard coal without loss by sifting through small openings.

The coupled length of the car is only 41 ft. 6 in. The length over buffers is 39 ft. and the inside clear length of the car body is 38 ft. The extreme width is 10 ft. 2½ in. and the height from the rail to the top of the side is 10 ft. 8 in. The capacity of the car is 2,716 cu. ft. and the light weight is 50,400 lb. Four double hoppers, provided with large door openings, facilitate easy and rapid discharge of lading. All details of the hoppers, such as the side sheets, stiffeners, cast frames, door spreaders and doors are standardized and interchangeable, thus minimizing the number of repair parts required for stock. This also applies throughout the entire car design. The hopper doors are corrugated steel, each set operating independently of the other.

In order to shorten the car and also to lower its center of gravity while still maintaining its unusually large capacity, the floors of the end hoppers contain pockets to clear the wheels. This feature is entirely self-clearing for all ordinary lading.

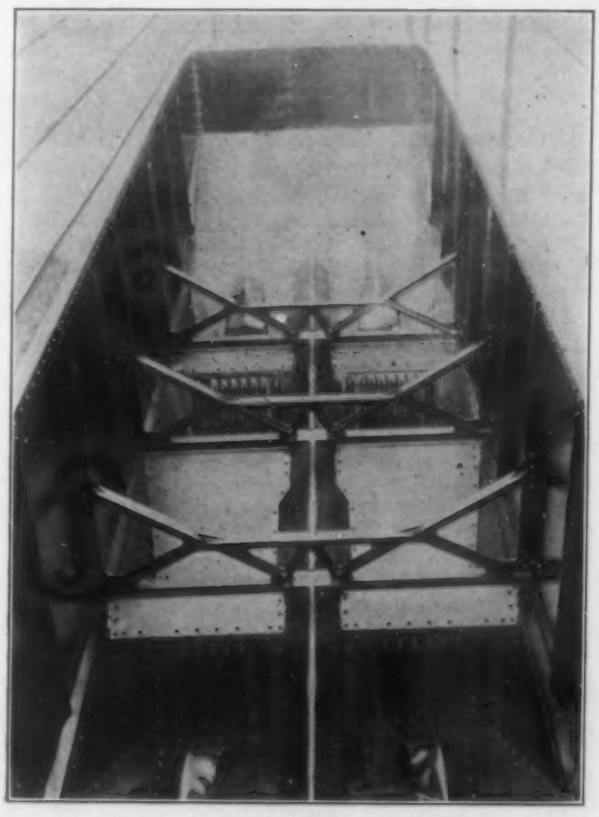
The hoppers have a cast-steel door frame which gives a rigid construction and maintains the alinement. The frame carries the hinge lugs which prevents the doors from getting out of line once they are fitted up in the proper location. The frames also insure against loss of lading through the doors because there can be no change in the door fits due to weaving of the car body. The finest dry lading can be hauled without loss through the door fit. The cast frame ties into both center and side sills, increasing the rigidity of the understructure of the car. Another important advantage of the cast steel frame is that it gives a much longer life to the material around the door fit where the conventionally lapped sheets quickly rust out.

To increase the loading capacity, the stakes are placed inside the side sheets. There are nine stakes on each side of the car, each being 4 in. by 3½ in. by ⅜ in. bulb

angles, the same section as used for the top coping angle. Two stakes on each side are riveted directly to the cast-steel bolster and three on each side are riveted directly to the cast-steel cross bearers. The cross bearers also tie into the side stake about half way up the side of the car, thereby eliminating all cross ties from the car. The corresponding side stakes are interchangeable for either side. The whole side of the car, as fabricated, can be used without change on either side.

Underframe and Body Construction

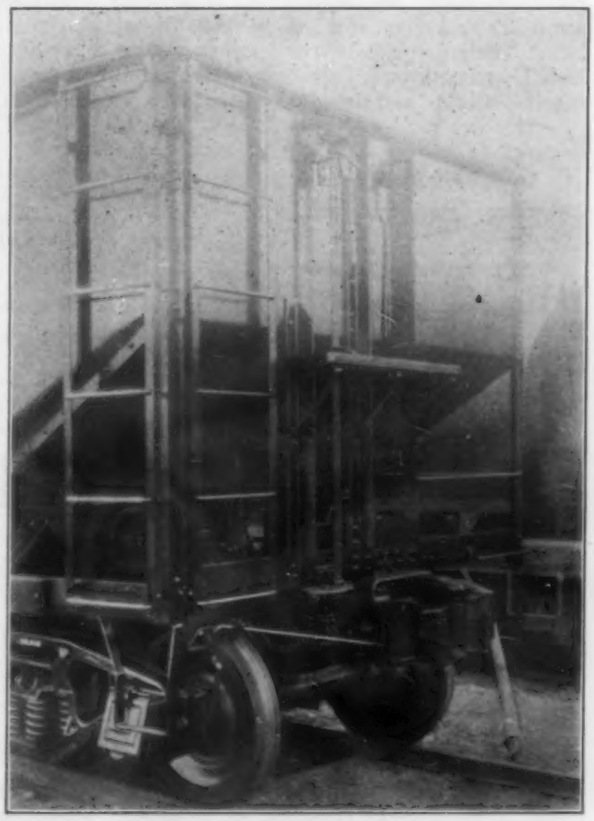
The underframe is of the built-up type with two center sills composed of A. R. A. standard 12 in. special rolled section weighing 40.3 lb. per ft., with flanges turned in at the top and extending the full length of the car. The top cover plate is ½ in. by 13½ in. The end of the sills are coped away to receive the buffer attachments. The Union coupler centering device combined with the striking casting is used. The side sills are made up of ⅜in. by 10½ in. plate pressings running the full length of the car. The center portion of the side sills between the bolsters is a Z-section with legs vertical and a sloping web, changing to a deep angle section just before reaching the bolsters, and extending from there to the end of the car. The sloping web of the side sill gives a self-clearing feature on the inside of the car without the use of additional slope sheets or pressings. To make the car 100 per cent self clearing, the conventional hood sheet



An Interior View of the Car—The Cross Members are Steel Castings and the Side Stakes are on the Inside of the Car

is used over the exposed portions of the center sill.

The body bolsters are cast steel of truss form, spliced at the center over the center sills. Particular attention was paid in designing the bolster to secure ample strength at the body bearing location as well as of connections at the bolster, side frame and side sill. The cross bearers are cast steel, truss type, and extend across the full width of the car. The corner diagonal braces are 6 in. by 3½ in. by ⅜in. angles riveted directly to the nections at the bolster, side frame and side sill. The



End View of the 70-ton Hopper Car Showing the Coupler Arrangement and Trucks

connection to the side sill is made through a clip angle riveted to the diagonal brace.

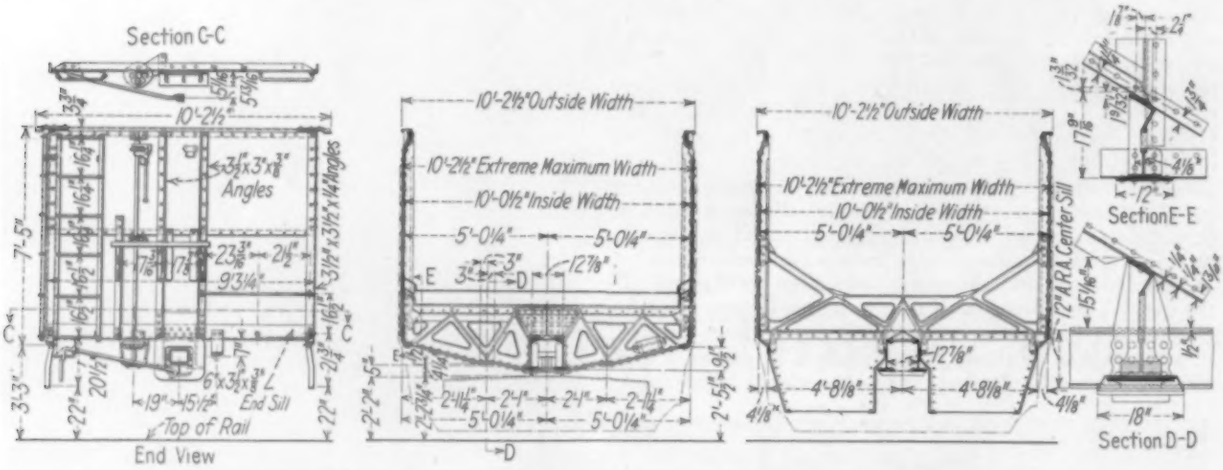
The coping is a 4 in. by 3½ in. by ⅜in. bulb angle running the full length of the car. The main side sheets are of ¼in. plate. The end side sheets are 3/16 in. thick, pressed to a taper to accommodate the side ladders, the construction of which is in accordance with the Pilcher patent owned by The Wine Railway Appliance Company. The side sheets and side stakes are pressed inward at the top with cast stiffeners on the outside opposite the stake connections. This gives a self-clearing feature when the car is unloaded in a dumping machine.

The end sills are 6 in. by 3½ in. by ⅜ in. angles. The corner posts are 3½ in. by 3½ in. by ¼ in. angles. The end posts are 3½ in. by 3 in. by ⅜ in. angles which tie into the striking casting at the center sills and are so arranged as to tie in the end of the center sill with the end construction of the car, thereby eliminating sagging at this point. A short intermediate post of the same size angle is used to support the brake step which is arranged for the Perfection brake ratchet and Interlox shaft ratchet.

Draft Gear and Trucks

The car is equipped with the National M-17 friction draft gear. The standard A. R. A. back-stop casting is used. The rotary-operating Type D coupler is used on

the "A" end of the car. It has a 6 in. by 8 in. shank with a vertical cast steel yoke. The coupler in the "B" end of the car is the rotary-operating Buckeye-Goodwin swivel-butt type with 6 in. by 8 in. shank and is fitted with a key equalizer used with vertical cast steel yoke. Both couplers have 11 in. knuckles and have the bottom rotary-operating release rigging. The draft keys used are 6 in. by 1½ in. round edge with Buffalo draft key lock. The truck side bearings are the Wine heavy-duty Bull Dog bearings. This bearing has unlimited travel, is self-centering and designed particularly for the 70-ton car. The car superstructure is mounted on Dalman trucks of 5 ft. 8 in. wheel base, spaced at 29 ft. truck centers. The "B" end of the car is equipped with the standard Dalman. Under the "A" end of the car is the Dalman improved Q. W. C. truck with cast steel spring plank which enables changing of wheels by removing nothing but the brass and wedges and lifting off the side frames.



Cross Sectional Elevations Showing the Arrangement of the Cross Members

Principal Dimensions of the Car

Length over pulling face of couplers	41 ft.	6	in.
Length over buffers	39 ft.	0	in.
Length inside	38 ft.	0	in.
Width over all	10 ft.	2½	in.
Width inside	10 ft.	0½	in.
Height, top of rail to top of body	10 ft.	8	in.
Height, top of rail to center of coupler	2 ft.	10½	in.
Height, top of rail to hopper opening	0 ft.	11⅛	in.
Height, top of rail to top of side bearing	2 ft.	6 13/16	in.
Centers of side bearings	2 ft.	1	in.
Truck centers	29 ft.	0	in.
Cubic capacity level full	2,716	cu.	ft.
Light weight of car	50,400	lb.	

Another feature that has been worked out in the design of this car is that of changing the design to a 57½-ton car by omitting one hopper section from the car. This does not change rivet spacings in the connections. It means shortening only the through members by 6 ft. 4 in. The 57½-ton car has an inside length of 31 ft. 8 in. and a cubic capacity of 2,222 cu. ft. when level full.

Among the specialties on the car are: Cast steel truck bolsters, side frames, spring plank, draw bar yokes, couplers, bolster center braces and body center plates manufactured by the Buckeye Steel Castings Company, Carnegie wheels and axles, metal compensating dust guards by The Harrison Dust Guard Company, Ajax corrugated hopper doors, coupler centering device and striking casting and bottom rotary-operating coupler-release rigging by the Union Metal Products Company, truck levers, bottom connections, brake hangers and clevises by The Schaefer Equipment Company, Hannaford angle cock holder and Sambo hand brake by The Car Devices Company, Buffalo brake beams, safety supports, brake shoe keys, self-locking brake pins and draft key locks, perfection brake ratchet and Interlox brake shaft ratchet and retainer valve holder by The Railway Devices Company, draft gear by The National Malleable & Steel Castings Company, Duco finish all over, safety ladders, Bull Dog truck side bearings, and drop-door locks by The Wine Railway Appliance Company, Capital waste retainers, Allegheny Steel Company, hoodless self-fitting torsion-spring journal-box lids on Q. W. C. truck, and the standard Dalman truck equipped with Railway Steel Company's non-hood journal-box lids with pin retainers.

Loree Challenges I. C. C.'s Power

DIVISION IV of the Interstate Commerce Commission has advised L. F. Loree that it has under consideration the revocation of its order authorizing him to serve as a director of the Missouri-Kansas-Texas and giving him 10 days to show cause why the authority should not be revoked. Mr Loree has replied, challenging the commission. He says he was elected by over 500,000 votes from the public at large, independent of the stock owned by the Kansas City Southern, which has since sold its Katy stock.

The Commission has assigned a hearing before Director C. D. Mahaffie of the Commission's Bureau of Finance on June 29, at Washington.

It was also learned that Commissioner Eastman on June 5 had addressed a letter to Charles Hayden, chairman of the Chicago, Rock Island & Pacific, similar to that addressed to Mr. Loree, and giving him ten days in which to show cause why the commission should not revoke the order of May 8, 1925, authorizing him to serve also as a director of the St. Louis Southwestern, at the time the Rock Island was seeking the authority of the commission to acquire control of the Cotton Belt. The order provided that the authority granted should cease at the expiration of 30 days after the date of any order denying the application of the Rock Island, but no such denial was ever issued because, after an unfavorable report of the commission's examiner, the Rock Island sold its stock to the Kansas City Southern.

A. S. T. M. Meeting

THE American Society for Testing Materials will open its annual meeting at the Chalfonte-Haddon Hall this morning. The program will continue throughout most of the week, the final session being scheduled for Friday, June 29.

Speaker Flies To Convention

MAJOR Clarence Young, director of aeronautics of the Department of Commerce at Washington, will make the address on aeronautics this morning, in place of W. P. McCracken, Jr., previously scheduled on the program to give this talk. Major Young has arranged to fly from Washington to Atlantic City, unless the weather interferes.

The Entertainment on Saturday

THE entertainment features on Saturday included the usual morning concert and impromptu dancing in the afternoon, in Entrance Hall on the Million Dollar Pier.

It was "Canadian Night" on the pier in the evening, affording a distinct opportunity to the MacGregors, the MacMillans and the MacIntoshes, and all the other "Auld" clans to revel again in their ancestral memories, and correspondingly, to entertain, as nobody but the following of Bobby Burns and Queen Mary can do, through their costumes, the shrill bleatings of bag pipes, and bursting arsenals of Scotch stories told by Scotchmen.

The entertainment was held in the ball room during a recess in the dancing festivities, and was enjoyed by the large and appreciative gathering which has featured every evening on the pier. There was a "Miss Canada" in the person of Miss Viola Smart, daughter of G. E. Smart, chief of car equipment of the Canadian National, and chairman of the Mechanical Division of the A. R. A., who in her place on a float, added a touch of beauty which the Kilties found most stimulating, judging from the evidences of chivalry the Caledonian Pipe Band displayed while serving as her escort. The finishing touch of the performance was well provided by original wit from A. McGowan of the Canadian National.

Altogether, it was a highly pleasing entertainment the Canadians provided, and attested to the fact that "auld acquaintance" had not been forgot.

The sub-committee in charge of the evening's program was headed by L. B. Rhodes, chairman, and C. R. Bush, vice-chairman. Other members of the committee were W. T. Lane, C. G. Learned, R. Welsh, F. A. Wirth, J. R. Wetherald, H. O. Fettinger, J. A. Boyden, J. C. Campbell, George E. Hass and J. H. Cooper.

Registration, American Railway Association

Division V—Mechanical

Acworth, J. S., Supv. Equip., Gen. Am. Tank Line, Ritz
Adams, C. W., Div. M. M., M. C., Ritz
Adamson, E. A. M. C. B., C. of Ga., Brighton
Alexander, Walter, Pres., Union Ref. Trans., Ambassador
Allen, C. L., Ch. Draftsman, Can. Nat., Ambassador
Ambrose, Daniel, Asst. M. M., B. & O., Craig Hall
Anderson, Alin, Shop Supt., B. & M., Haddon Hall
Anderson, N. T., Mech. Eng., Frt. Grow. Exp., Breakers
Appler, A. Benj., Mech. Engr., D. & H., Strand
Baker, G. T., Gen. Car. Insp., Penna., Sterling
Barry, T. L., Asst. S. H. P., N. & W., Ambassador
Beaumont, H. A., Gen. Car. For., B. & O., Lewellyn
Beaver, R. C., Asst. Mech. Eng., B. & L. E., Strand
Benson, M. M., Mich. Cent.
Bevan, T. D., Eng. Pow. Houses, C. of N. J., Morton
Beverley, R. H., Asst. Eng. Tests, Sou., Haddon Hall
Bentley, W. F., Spec. Insp., B. & O., Deanville
Bibb, Arthur, Ch. Car Draft., D. & H., Shelburne
Billig, Chester A., Asst. For., Reading, Stanley
Boring, T. J., Gen. For., Penna., Ritz
Bowden, John F., M. M., B. & O., Strand
Bowes, W. E., For. P. R. R., Apollo
Boyer, C. E., Gen. Car. Insp., Penna., Runnymede
Brady, J. E., M. M., B. & O., Tabor Inn
Briant, C. A., W. J. & S.
Brogdon, C. E., M. M., A. C. L., De Ville
Brooks, W. S., Supt. of Equip., Stand. Tran. Line, Colton Manor
Brossart, J. A., Gen. M. C. B., C. C. C. & St. L., Colton Manor
Brown, F. S. Mech. Engr., Erie, Princess
Brown, T. L., M. M., N. & W., Ambassador
Bruehler, C. H., Mech. Insp., A. R. A., Ritz
Bub, F. E., Ch. Cl. A. R. A. Cl. Hse., N. Y. C., Penn-Atlantic
Buehler, Stanley, Fireman, Reading
Bullock, Harvey, For., N. Y. C., Pasedena
Burch, J. J., G. F., N. & W., Ambassador
Burgors, Gustav, Loco. Shop For., N. Y. C., Louvain
Calder, Wm. W., Dist. M. C. B., B. & O., Haddon Hall
Callahan, F. R., Supt. of Repair, Pullman, Ritz
Cantwell, J. L., M. M., Sou., Rittenhouse
Carson, G. E., Ret. M. C. B., N. Y. C., Dennis
Carty, F. J., Mech. Engr., B. & A., Pennhurst
Caswell, W. H., Ch. Mech. Insp., N. Y., N. H. & H., Monticello
Chenoweth, E. G. Gen. For., C. R. I. & P., St. Charles
Chester, Frank R., R. H. For., C. R. R. of N. J., New Brady
Clark, Jas., Boiler Insp., Reading, Wyoming
Clarke, Arthur B., Gen For., Reading, Dennis
Clay, E., For., C. of N. J.
Coburn, W. N., Div. Gen. Car For., B. & M., Chalfonte
Coleman, J., Gen. Supt. Car Equip., Can. Nat., Ritz
Cooper, H. M., Insp. M. P., Penna, Eastburn
Cornell, C. C., For. P. R. R., Strand
Coulter, A. F., M. C. B., Union, Morton
Coulter, J. W., M. M., Alt. & Sou., Ritz
Covert, M. P., Supt. Car Equip., Q. C. T. L., Ritz
Craig, James, Supt. C. Maint., V. & M., Dennis
Crockett, F. J., Spec. Insp., B. & O., Traymore
Crowell, H. C., Asst. to Ch. Eng., Penna.
Dampman, Wm. M., Rdhse. For., Reading, Westminster
Danbert, Samuel E, For., Reading, Miller Cottage
Davis, J. H., Ch. Eng. Elec. Tract., B. & O., Shelburne
Deppe, J. A., Asst. Supt. Car Dept., C. M. St. P. & P., Strand
Douglas, F. W., M. M., Ga., A. & W. P. & Atl. J. T., Chelsea
Douglas, J. H., M. C. B., W. & L. E., Traymore
Drake, L. J., Pres., Union Tank, Traymore
Drury, M. J., Mech. Insp., A. T. & S. F., Traymore
Dunne, V. J., Matl. Insp., N. Y., N. H. & H., Traymore
Eklund, Karl A., Asst. For., C. R. R. of N. J., New Brady
Eldridge, W. K., Draft., N. & W., Ambassador
Elwell, G. W., For. Car Dept., C. R. R. of N. J.
Everett, E E., Ch. Cl. to Gen. S. M. P. & R. S., N. Y. C., Marlborough
Everett, Ira, Gen. Car Insp., L. V., Dennis
Faus, H. W., Eng. Tests, N. Y. C., Ambassador
Filer, James, Ch. Eng., Reading, Emmet
Fischer, C. H., Insp. Tran., Reading, Dennis
Fletcher, J. Gen. For., S. A. L., Ambassador
T. F. Foltz, Elec. Eng., Wash. Term.
Forner, Curtis, Asst. For., C. R. R. of N. J., Brady House
Foster, Geo. L., Ch. Jt., Car Insp., Chelsea
Fowler, W. A., Ch. Eng. & Gen. Supt., Montour
Fritch, L. C., V. P., C. R. I. & P., Chalfonte
Fryer, C. V., Gen. Car. For., N. Y. C., Breakers
Gaebler, A. H., M. C. B., Swift Rapid Trans. Co., Chalfonte
Gearhart, J. F., Ret. For., Penna., Knickerbocker
Geddes, J. R., Gen. Supt., Mon. Conm., Strand
Geertz, A. O. Asst. For. P. R. R., Dennis
Gerard, F. R., Supt., L. I., Chalfonte
Gillies, W. H., Gen. For., L. L., Jefferson
Gimpel, J. H., Supt. Car Dept., Wabash, Ritz
Goff, C. G., M. M., Sou., Rittenhouse
Goodman, C. W., Mach. Help., Penna., Ambassador
Goodrich, M., M. M., N. Y. C., Eastbourne
Grant, Harry L., Off. Eng., N. Y. N. H. & H., Ambassador
Grant, James, Shop Supt., A. C. L., Llewellyn
Green, Wm. T., For., Penna.
Greenhill, Gordon K., Div. Pie., Insp., D. & H., Marlborough
Gregg, Bartram M., Pipe Fitter, Reading
Grove, J. R., Asst. M. M., B. & O., Brighton
Hall, W. H., Ch. C. Insp., C. R. R. of N. J., Arlington
Hamm, Warren C., Mech. Engr., C. V., Haddon Hall
Hamm, Chas. A., R. F. E., Reading, Stanley
Hardy, W. E., Gen. For., C. of N. J.
Harris, S. H., Asst. Ch. Car Insp., Wabash, Breakers
Hassler, H. G., Gen. For., Penna., Sterling
Hawkins, R. D., G. S. M. P., A. C. L., Shelburne
Hayes, C. J., Supv. A. R. A. Cl. Hse., N. Y. C., Penn Atlantic
Heller, H. T., For, Penna, New Field
Hengstler, David, Gen For., Penna.
Hennessy, J. J., Asst. Supt. Car Dept., C. M. St. P. & P., Ritz-Carlton
Henry, J. M., Ast. Ch. Mot. Pow., Penna., Chalfonte
Herlihy, J. J., M. M., B. & O., Ambassador
Herrold, A. E., M. M. & M. C. B., Monongahela Connecting, Pennhurst
Hogan, J. S., Elec. Eng., C. of N. J., Dennis
Holland, H. L., Asst. Eng., B. & O., Glaslyn Chatham
Howell, F. P., S. M. P., A. C. L., Kentucky
Humburch, R. S., Mech. Eng., Merchants Despatch T. Co., Haddon
Hunt, Robt., Mech. Engr., S. A. L., Chelsea
Jennings, Paul V. Layerout, Reading, Osborne
Johnston, V. C., M. P. Insp., P. R. R., Elberon
Jones, Jos. For., N. Y. C., Ambassador
Jones, N. W., Asst. Supt., Reading, Jefferson
Kass, P., Supt. Car Dept., C. R. I. & P., Haddon Hall
Keegan, J. E., Gen. Car Insp., Penna., Marlborough
Keiber, Henry, Asst. For. C. S., Reading, Princess
Keiser, C. B. M. P., P. R. R., Haddon Hall
Kelly, G. W., For., C. of N. J.
Kenney, A. M., Wreck Cl., Reading, Stanley
Keppelman, H. S., Gen. Car Insp., Reading, Ambassador
Kiefer, P. W., Ch. Eng., M. P. & R. S., N. Y. C., Ritz-Carlton

Kimbel, Harry C., For. Mach. Sh., C. R. R. of N. J., New Brady House
Kinney, M. A., S. M. P., H. V., Traymore
Kinter, D. H., Gen. For., Monongahela, Raleigh
Kipp, A., Gen. Car Insp., N. Y. O. & W., Chalfonte
Krell, John H., Rhse. For., Reading, Jefferson
Krueger, A. J., M. C. B., N. Y. C. & St. L., Ambassador
Kutner, S. D., Asst. Eng., N. Y. C., Marlborough
Langton, G. H., Gen. M. M., C. & O., Ambassador
Lawless, William J., For., O. of N. J.
Lawson, A. B., Asst. Eng., B. & O., Glaslyn Chatham
Leach, J. T., M. M., Penna., St. Charles
Lee, F. H., B. & O., Raleigh
Lentz, W. L., N. Y. C., Marlborough
Lindner, W. C., Ch. Car Insp., Penna., Shelburne
Long, R. M., A. B. Supv., N. Y. C., Traymore
Lovejoy, Geo. R., M. M., Det. Term., Carolina Crest
Lyon, A. G., Trav. Insp., N. Y. C., Penn Atlantic
Mallam, T. L., For., P. R. R.
Mengel, J. C., Asst. Wks. Mgr., P. R. R., Marlborough
Newman, C. M., Supv. of Shops, B. & O., Shelburne
McClennan, W. J., Gen. Shop Insp., N. Y. C., Ritz-Carlton
McDowell, J. L., Gen. Car For., K. & I. Term., Osborn
McGahey, R. E., M. M., R. F. & P., Dennis
McGann, C. E., M. M., B. & O., Haddon Hall
McGee, W. A., M. E., N. of C., Ambassador
McGowen, A. Asst. Gen. Supt. Car Equip., C. N. R., Ritz
McHamara, C. J., Erie, Marlborough
McMullen, James L., Eng. Draft., N. Y. C., Traymore
McMunn, W. R., Supt. Roll. St., Merchants Despatch, Ambassador
Madara, Wm. C., Asst. For., Reading, Somerset
Maginn, J. J., M. M., N. Y. C. & St. L., Shelburne
Mallard, J. T., M. M., N. & W.
Mansfield, J. H., Gen. Boil. Insp., C. of N. J., Princess
Marlow, G. A., Ch. Car Insp., Penna., Traymore
Marsh, E. P., Asst. Supt. Car Dept., C. & N. W., Marlborough
Martin, K. H., Gen. Equip. Insp., Sou., Shelburne
Marvin, J., For. Equip. Insp., N. Y. C.
Mechling, J. E., Spec. Insp., Penna., Craig Hall
Mehan, J. E., Asst. to Supt. Car Dept., C. M. St. P. & P., Ritz-Carlton
Mercereau, E. C., Draftsman, N. Y. C. Morton
Michael, J. B., M. M. Ret., Sou., Rittenhouse
Miller, C. A., Ch. Cl. Eng. Dept., Reading, Tabor Inn
Miller, E. B., M. C. B., B. & O., Lexington
Miller, R. N., Asst. Engr., P. R. R.
Minnick, Oscar W., For. Car Insp., Reading, Princess
Moir, W. B., Gen. Car Insp., Penna., Haddon Hall
Moriarty, G. A., Gen. Mech. Supt., N. Y. N. H. & H., Shelburne
Mounce, R. S., Gen. Mgr. Car Rep., Erie, Strand
Muir, R. Y., M. C. B., P. & W. V., Princess
Mura, Robt. F., For., A. C., Chalfonte
Mystrom, K. F., Supt. Car Dept., C. M. St. P. & P., Traymore
Needham, R. J., Mech. & Elec. Engr., Can. Nat., Ambassador
Neil, J. O., For., C. of N. J., Mason House
Noble, H. S., M. M., P. R. R., Chalfonte
Noonan, Wm. T., Pres., B. R. & P., Marlborough
O'Brien, J. E., Chf. M. P. & E., S. A. L., Ritz
O'Brien, T. J., Supt. Car Dept., Term. Ry. Assn., Brighton
Page, C. M., Supv. of Fuel, L. V., Sterling
Paris, D. O., For., P. R. R., Dennis
Parker, W. V., Car Insp., P. R. R.
Parslow, S. R., Vet. Mach. For., G. N., Dennis
Patterson, R. T. L., Pow. Insp., Penna. System
Paul, Jos., Supt. M. P., A. C. L., Shelburne
Pearson, E. W., Asst. Ch. Draft., Can. Nat., Haddon Hall
Peck, W. F., Supvr. of A. B., B. & O., Ritz
Peiffer, Chas E., M. C. B., B. R. & P., Princess
Petran, Chas., Supv. Tools, C. M. St. P. & P., Strand
Petsch, J. F., Mach., B. & O., Knights Columbus Hall
Pfau, I. W., Asst. Ch. Eng., N. Y. C., Ambassador
Puthuff, E. A., Asst. Ch. M. P. & E., S. A. L., Chelsea
Rauenzahn, S. H., For, Reading
Reehart, G., S. S. Fgt. Dept., C. M. St. P. & P., Strand
Retterer, R. W., Mech. Eng., C. C. C. & St. L., Marlborough
Rice, Jere. L., Insp., Reading, Westminster
Ring, J. M., A. R. A. Insp., Can. Nat., Ritz
Robertson, E. J., Supt. Car Dept., S. O. O., Traymore
Robertson, H. M., M. C. B., No. Pac., Ritz
Robinson, Lee, Shop Eng., I. C., Ambassador

Division VI—Purchases and Stores

Clay, T. F., Matl. Insp., P. & S., M. K. T., Traymore
Cook, Charles M., B. & O., Elberon
Creedon, F. D., Cl. P. A., B. R. & P., Colton Manor
Davis, G. H., For. Stores Dept., Penna., Belvedere
Dickinson, T. R., Stk., B. & L. E., Traymore
Frye, M. E., Supv. Cl. Pur. Dept., N. Y. C.
Galligan, Eugene J., Ch. Clk., N. Y. C., Shelburne
Gorsuch, J. W., Genl. Matl. Supv., P. R. R.
Heiser, S., For. Gen. Stores Dept., Reading
Holzmer, J. F., Asst. P. A., N. Y. C., Haddon Hall
Hughes, P. E., Req., Mark., Penna., Apollo
Hyle, F. L., Matl. Insp., Mo. Pac., Spruce
Jones, R. H., Matl. Insp., No. Pac., Shelburne
Keliher, Edw. J., Clk. P. & S., Reading, Pitney
Kohler, J. G., Stk., B. & O.
Lodholz, Edw. G., Stk., Reading, Princess
Loughlin, F. J., Ch. Cl. P. A., Erie, Jefferson
McAuliffe, J. W., Cl. Pur. Agt. Off., Penna.
Meyers, R. C., Gen. Stk., Monongahela
Morris, R. T., P. R. R.
Nicholson, J. A., Supv. of Equip. Engr., U. P., Ambassador
Ryan, Arthur, N. Y. C., Shelburne
Templeman, T. A., Supv. Cl. Pur. Dept., N. Y. C.

Motor Transport

Baker, Geo. H., Insp. Pass. Ser., N. Y. C., La Rochelle
Downey, W. D., Supt. Equipt., Internal, Traymore
Fraser, E. J., Supt. Equipt., Balto. Coach., Princess
Stackhouse, R. K., Gen. Supt. Mot. Trans., Penna.
Twells, E. C., Supt. Sta. & Trans., P. R. R., Penn-Atlantic

Conventionalities

Mrs. Charles D. Jenks, Chicago, is missed at the conventions this year by her friends, and she is more missed by her friend husband, who is here.

John E. O'Brien, chief of motive power and equipment of the Seaboard Air Line, is accompanied this year not only by Mrs. O'Brien, but by John, Jr., who has just completed his fourth form at Hill School.

Frank E. Russell, mechanical engineer of the Southern Pacific, arrived on Saturday morning. He was detained because of his son's graduation from the mechanical engineering department of the University of California.

C. A. Brandt, chief engineer of the Superheater Company, has been doing considerable public speaking of late, his most recent effort being a paper on locomotive boiler proportions, at the February meeting of the Canadian Railway Club.

H. T. Malcolmson, general manager of the Toronto, Hamilton & Buffalo, accompained by his wife and daughter, Elinore, is stopping at the Hotel Dennis. Mr. Malcolmson expects the delivery of two new locomotives within the next few weeks and is also planning new shop facilities at Hamilton, Ont.

The general appearance of the Standard Stoker Company's booth has been materially brightened by the addition of a bevy of young ladies who motored down from New York on Friday. Henry Mann has elected himself official chaperon of the party, but Frank Roesch is keeping a mighty close eye on him.

One of the attractions in the American Arch Company's exhibit over the week-end was the navy ring on the engagement finger of Miss Mary E. Neff. The fortunate young man is Stanton Harcourt of Denver, Colorado. He was a member of the 1925 class at Annapolis and just resigned from the navy to enter business in New York City.

J. A. (Jim) Chambers, who attended the convention at Montreal as assistant to the mechanical engineer of the New York, New Haven & Hartford, is here this year as mechanical engineer, locomotive department, of the Ingersoll-Rand Company. Jim is a son of C. E. Chambers, superintendent of motive power, Central Railroad of New Jersey.

M. A. Kinney, superintendent motive power of the Hocking Valley, says they are following Henry Ford in the use of nickel plate on some of their passenger locomotives. As a result, when the farmers come to town and take the children to see the sights, one of the first things they do is to visit the railroad station to see the nice bright "choo-choos."

Marshall D. Raymond of the American Locomotive Company, and Mrs. Raymond, are attending their first A. R. A. convention at Atlantic City. The Raymonds are the proud parents of M. Donald Raymond, Jr., who is a little over two years of age. Donald, Jr. is not

attending the convention this year but, according to Ray, he will be the shining light at the exhibit two years from now.

C. L. Dickert, superintendent of motive power of the Central of Georgia, Savannah, is here as usual with Mrs. Dickert. Mr. Dickert is too modest to tell of his own achievements, but we learn from no less an authority than T. A. Johnson, electrical engineer of the Central of Georgia, that Mr. Dickert recently won the second flight golf prize in the spring tournament of the Central of Georgia.

Speaking of secretarial honors, Harry D. Vought has been attending these conventions since 1887. He has served the Central Railway Club as secretary-treasurer for more than 50 years, the New York Railroad Club almost 25 years, and the Master Boiler Makers Association 21 years. He is the only founder of the Society of Railway Club Secretaries (1896) still in active service, and continues as secretary-treasurer of the society.

W. G. Knight, mechanical superintendent of the Bangor & Aroostook, and his family arrived at Atlantic City Saturday. Mr. Knight reports that the second lot of 100 standard A. R. A. single-sheathed box cars will be completed at the Derby, Me., shops within a period of six weeks. He also states that the dynamometer car designed and built at Derby has aroused considerable interest on the part of many railroads in the country.

George Wildin was given a dunce cap in the cotillion on Friday evening. In the mix-up he found that he had as his partner a very attractive young lady. In a very naive way, she suggested that the dunce cap exactly fit George and was most becoming. Then, noticing the rather crestfallen look on his face, she attempted to square herself and comment further on his intelligent appearance. At last accounts he had not yet recovered, but was still showing signs of distress.

C. R. Crook, secretary of the Canadian Railway Club, is waxing quite enthusiastic over the results of the competition for papers open to men junior to chief clerks and foremen. One hundred and twenty-three papers were received before the closing date and are now being prepared for submission to the judges, who will make known their decision as to the winners in the late summer or fall. The club takes this course to encourage the younger men in the club and interest them in its activities.

F. N. Bard, president of the Barco Manufacturing Company, is unable to be present at the convention this year because of supervising the installation of plant equipment to increase the production of wrought-steel steam-heat connections for passenger cars, recently brought out by the Barco Company. These connections, consisting of drop forgings for all parts subject to wear or unusual stress, are designed to provide increased durability and strength for Barco steam-heat connections and so far as possible eliminate steam-heat failures.

Henry W. Buse, who has been connected with the Railroad Department of the Typewriter Division of the Remington Rand Business Service, Inc., for 32 years, not only has the distinction of being Mayor of Ridley Park, Pa., but also is known as a radio broadcaster of considerable experience. Mr. Buse has appeared before the "Mike" 232 times, presenting subjects of national and local interest, his latest talk being on the "Fining Squire," the growing bane of the automobilist of today. He is also mentioned as a possibility for the congressional nomination for Delaware and Chester Counties, Pa., in place of the late Thomas S. Butler who died last month.

"Jimmy" McLaughlin, Pacific Coast Manager for the Franklin Railway Supply Company, has recently acquired a country place near San Francisco, where he may be often found in pursuit of his hobby as a naturalist. Jim is especially interested in the study of woodpeckers and is recognized as an authority on the subject. "Bill" Tawse, of the Superheater Company, who is also a gentleman rancher in his leisure moments and has a place in the neighborhood, has co-operated with Mr. McLaughlin in his research into the habits and customs of the various species of this bird found in the west coast country. According to latest reports they have not as yet discovered how a woodpecker can use his head for a hammer without giving himself a headache.

L. T. Canfield, vice-president of the Union Draft Gear Company, for years a close student of draft gear problems, was in a reminiscent mood yesterday with some of his life-long railway friends. For 27 years Mr. Canfield was a railway man before he became interested in manufacturing and selling. Starting as a sectionman in the maintenance department and going along step by step, he went to the top of the ladder in the mechanical department. As a section man he received one dollar a day in wages. On the day he was raised to one dollar ten cents a day, he quit his job to make more money elsewhere. His foreman reproved him for leaving, saying: "Ye're a fool for quitting the gang; if they had cut ye, ye would have staid."

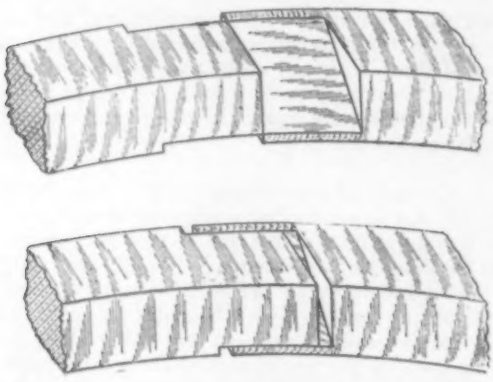
In the account of W. H. S. Bateman's career in the article entitled "The R. S. M. A. Again Makes Good," which appeared in the June 20 *Daily*, the following sentence appeared: "Since January, 1909, he has been general eastern and southern sales agent of the Champion Rivet Company and district sales manager of the Parkesburg Iron Company for western New York, Pennsylvania, Ohio and the southern states east of the Mississippi." As a matter of fact the Parkesburg Iron Company has been out of business for some time and it is not fair to "Doc" Bateman to associate him with any "dead ones." He now represents the Tyler Tube & Pipe Company, the Detroit Seamless Steel Tube Company, the Champion Rivet Company, and is also special railroad representative of the Lukens Steel Company.

Dean A. A. Potter, of Purdue University, reached Atlantic City on Wednesday and is accompanied by his wife, daughter and son. Incidentally, the son has just graduated from Princeton University and the Potter family came east for the commencement. This is Dean Potter's first visit to an Atlantic City convention and he is very deeply impressed by the extent and completeness of the exhibit. Purdue has for so many years been intimately associated with the work of the Mechanical Division and its predecessors, that it is not surprising to find the Dean is intensely interested in railroad activities and progress. He has been particularly active in the last few years in trying to stimulate a greater degree of interest in railroad work on the part of the students, and also in bringing about a better understanding on the part of the railroads as to the value of a technical training and how college graduates can best be utilized by the railroads.

New Devices

Leak-Proof Triple Valve Packing Ring

THE Westinghouse Air Brake Company, Wilmerding, Pa., has developed a new type of triple valve piston packing ring designed to increase operating efficiency, decrease frequency of replacement, and reduce fitting costs. It is counterbored, instead of bev-



This Type of Triple Valve Piston Packing Ring Has a Lap Joint Designed to Maintain Metal-to-Metal Contact

eled, to preserve a uniform bearing on both sides of the ring at its deepest section, and to keep the contact surfaces free from grit, thus making it easier to maintain a free-moving, air-tight ring. It also has a lap joint, instead of the ordinary saw-cut scarf, to maintain a metal-to-metal contact when the ring is closed or when the ends are separated, and to provide a barrier against leakage across the periphery of ring and on one of its sides. The pressure-tightness of the ring thus remains substantially constant under new and worn cylinder, and ring periphery conditions.

Spring-Supported Coupler Carrier

INCLUDED in the exhibit of the Symington Company, New York, is a coupler carrier designed for use in combination with the integral tie. The carrier is in the form of a renewable wear block, supported on springs

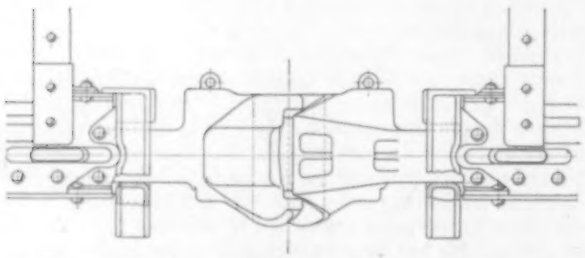


Fig. 1—Couplers and Cars in Normal Alignment

of sufficient capacity to maintain the coupler in a horizontal position under normal conditions, but designed to yield under an extraordinary load so that the coupler may angle downward and thereby maintain the parallel alignment of the face and knuckle with the adjacent coupler regardless of the relative changes in the height of

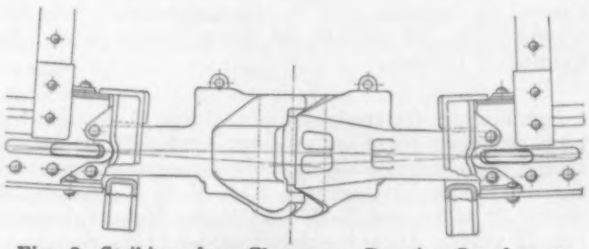


Fig. 2—Striking-plate Clearances Permits Couplers to Maintain Parallel Contact with Cars Inclined Downward

the respective cars. The action of this spring-supported carrier is shown in the drawings.

Fig. 1 shows the normal coupler alignment with the

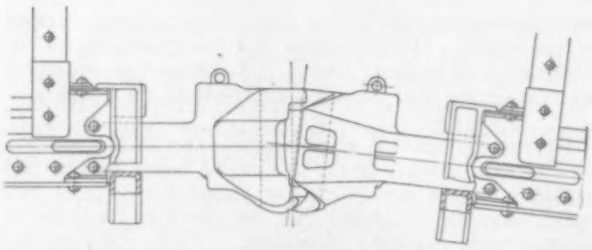


Fig. 3—With Cars Inclined Upward Couplers are Cramped by Fixed Carriers

cars standing at equal heights and on a level track. In Fig. 2, the adjacent car ends are inclined towards each other, either as a result of a low spot in the track or mo-

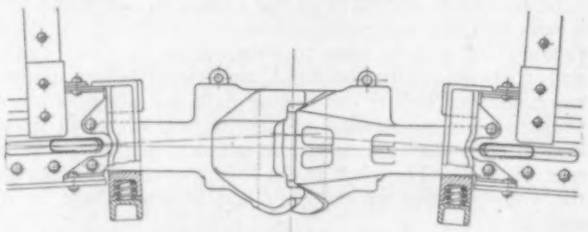


Fig. 4—Spring Supported Carriers Permit Couplers to Align Themselves

mentary spring movement. As the standard striking plate provides ¾ in. top clearance over the coupler shanks, the couplers maintain parallel contact between the knuckles under pull. In Fig. 3, the car ends are shown inclined away from each other, and the cramping action between the couplers caused by the usual rigid coupler carrier is illustrated, while in Fig. 4, the coupler alignment is maintained through the yielding of the spring-supported carriers.

In Fig. 5 is shown the actual alignment of the couplers with rigid carriers under a temporary relative difference in drawbar height. The coupler on the low car to the right can angle upward because of the striking-plate clearance, but the coupler on the left cannot deflect downward to maintain parallel alignment of the coupler knuckles, because it is restrained by the rigid carrier. In

Fig. 6 is shown the maintenance of parallel knuckles under the same car conditions through the medium of the

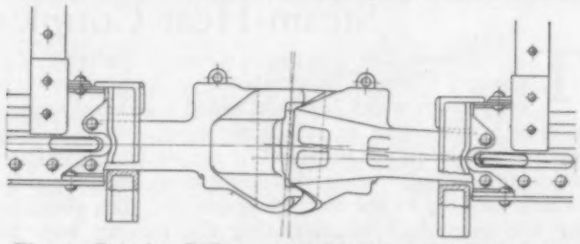


Fig. 5—Relative Difference in Drawbar Height Causes Cramping with Rigid Carriers

spring supported carrier which permits the coupler on the high car to deflect downward temporarily.

By the avoidance of all cramping between coupler faces

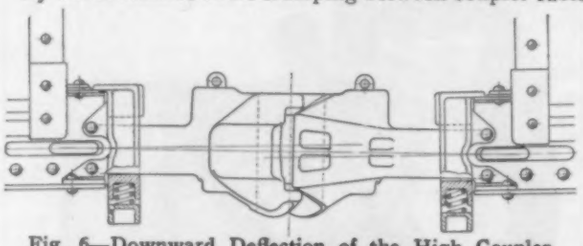


Fig. 6—Downward Deflection of the High Coupler, Permitted by the Carrier Spring, Keeps the Knuckle Faces Parallel

and knuckles, it is anticipated that a large percentage of the current breakages of couplers can be avoided, and that the wear of the faces and knuckles can be materially reduced through the maintenance at all times of full bearing area between the parts in contact.

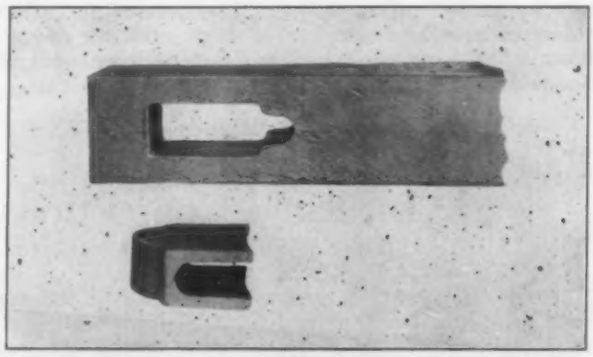
Buckeye-Goodwin Swivel-Butt Coupler

THE Buckeye-Goodwin swivel-butt coupler which is being exhibited by the Buckeye Steel Castings Company, Columbus, Ohio, has been designed to provide increased swiveling at a minimum increase in weight and cost. The design of the swivel portion of the shank consists of a rectangular slot in the coupler shank having a

The Shank of the Buckeye-Goodwin Swivel Butt Coupler Cut Away To Show the Application of the Swivel Block

concave surface at the rear end. A cast swivel block having a convex surface at the rear end which coincides with the concave surface in the shank slot, carries the transverse key. Two flanges extend forward partly surrounding the key and terminating with dished end. The swivel block is so designed that it may readily be applied or removed when the key and coupler are removed and when the key is in place it prevents the swivel block from becoming disengaged from its seat in the coupler shank.

The Buckeye-Goodwin swivel-butt coupler interchanges with the present Type D coupler in both the horizontal and vertical yoke applications. It can, therefore, be used for replacements without any alterations to existing draft arrangements, as well as for new cars. The in-



Shank and Swivel Block of Buckeye-Goodwin Swivel Butt Coupler

crease in weight over the present A. R. A. standard coupler is less than 10 per cent, and the strength of the shank has been increased approximately 10 per cent. The ultimate pulling strength of the design is approximately 670,000 lb. The minimum sectional area of the Buckeye-Goodwin shank is 16.08 sq. in. as compared with 15.03 sq. in. for the present A. R. A. shank.

The swivel-butt coupler is designed to eliminate wear at all places where key contact occurs; that is, on the key itself, the key bearing on the yoke, and the key bearing in the coupler shank. The wear has been confined to the contact between the swivel block and the shank, thus making slack adjustment a simple matter if desired. With the cast-steel yoke and the swivel-butt coupler, there is freedom of swiveling with two A. R. A. cars on a curvature of up to approximately 30 deg.

The swivel-butt coupler can be used with a one-piece integral striker and carrier; it can be replaced by the removal of one key; it is simple in construction, not requiring any special pivot pins or cotters, and no increase in slack is necessary. It also provides the same amount of vertical angling as the present A. R. A. standard.

Metal Screen Frame for Dining Car Windows

THE Regal metal frame for car window screens, designed especially for club, buffet and dining cars, which is being exhibited by the Tuco Products Corporation, 30 Church Street, New York, possesses distinct advantages over wood frame construction. It makes an unusually neat appearance and, while stronger and more substantially constructed than wood, it is also thinner and occupies less space in storage.

With these metal frames, it is possible to use an adjustable shoe, by means of which the screens can be quickly and easily fitted to each window, even when the distance between the window posts varies by as much as ¼ in. They are also designed with grooves which hold the weather strips, the renewal of which becomes simply a matter of sliding out the old strip and sliding in the new.

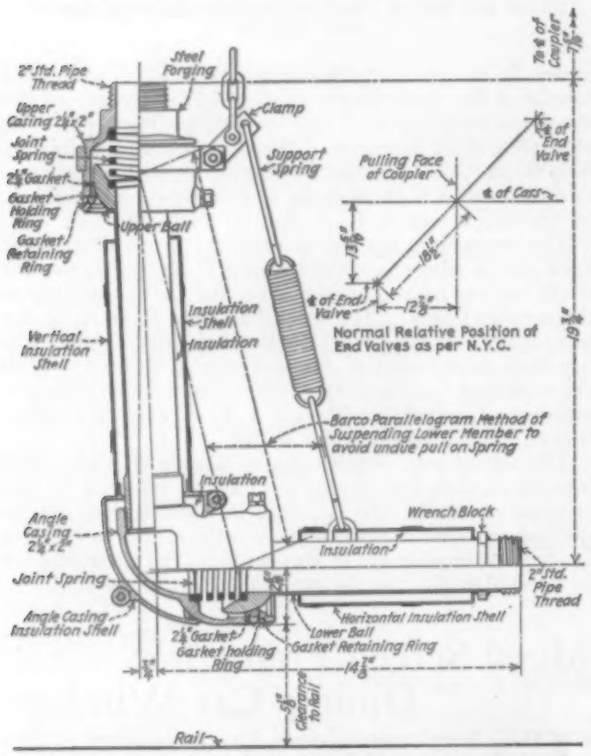
The Regal frames hold the screen mesh firmly by retaining beads which can be easily removed from grooves when it is necessary to tighten or renew the

wire cloth. The adjustable shoe and a depression for the hand in the right side of the frame make it easy to take out or to put in place.

These screens can also be equipped with wind and cinder deflectors, either of the slip-on type, which slides onto the edge of the frame, or of the type which is directly hinged to the frame. The frames are made either of pressed bronze or of steel, with an enamel finish which harmonizes with any desired scheme of car decoration.

Barco 2-in. Steam Heat Insulated Connections

INCLUDED in the exhibit of the Barco Manufacturing Company, 1801 Winnemac avenue, Chicago, is its latest design of 2-in. steam heat connection for use with the 2-in. 90-deg. end valves and 2-in. straight-port coupler heads. This design includes several changes



The Barco 2-in. Car Steam Heat Connection Adapted for 2-in. 90-deg. End Valves and 2-in. Heads

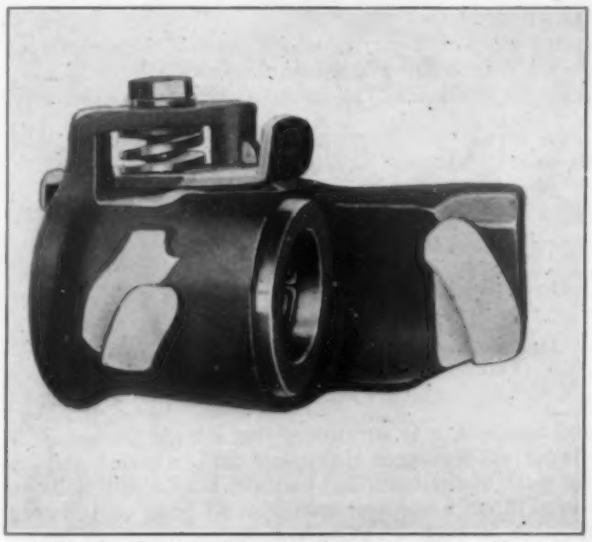
which are not found in the older type connections. It is of all steel construction, with the exception of one elbow casing, which is of malleable iron. The benefit of the steel construction is that it may be straightened or reclaimed in case of an accident, whereas malleable iron is destroyed and has to be replaced.

Another change is the elimination of pipe threads. The only threads found are at either end where the connection screws into the end valve at the top and into the coupler head at the bottom. The gasket is held in place by a three-piece offset ring which in turn is locked in place by a small set screw. The coupler heads can be screwed on without removing the insulation.

The elimination of the nuts and threads and the all-steel construction has reduced the weight of the connection 20 per cent.

Tension Lock for 2-in. Steam-Heat Coupler

THE Vapor Car Heating Company, Railway Exchange, Chicago, is exhibiting a 2-in. steam-heat coupler, to which has been added a yielding tension locking arrangement in which the spring-steel locking lever moves in an arc horizontally across the arm of the opposing coupler, forcing it straight down into the side-locking cam lug of the connecting coupler, thus eliminating the possibility of distorting the locking lugs by lateral strains.

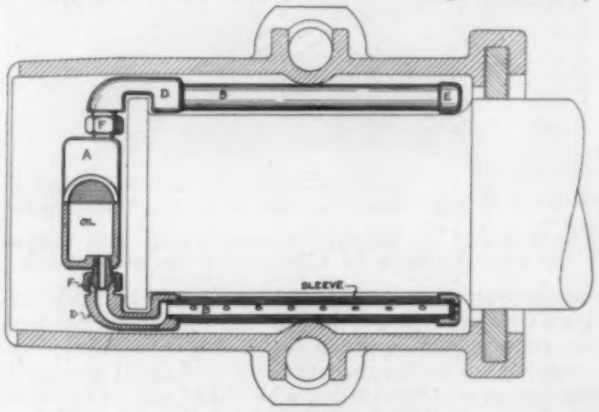


A Tension Lock Is Now Applied to the Vapor No. 310 2-in. Steam-heat Coupler

The lever is a heavy coil compression spring which acts as a fulcrum and provides the necessary cushion to prevent damage to the locking lever when moved to the extreme position and which also permits the locking lever easily to adapt itself and lock effectively against coupler arms of varying heights.

Car-Journal Oiling Device

A CAR journal oiling device designed to distribute oil uniformly over the entire surface of the waste on both sides of the journal, is being exhibited by



A Plan View of the Ardco Car-journal Oiling Device

the Ardco Manufacturing Company, One Newark street, Hoboken, N. J. The oil is put in the container *A* from which it flows through the perforated arms *B* which

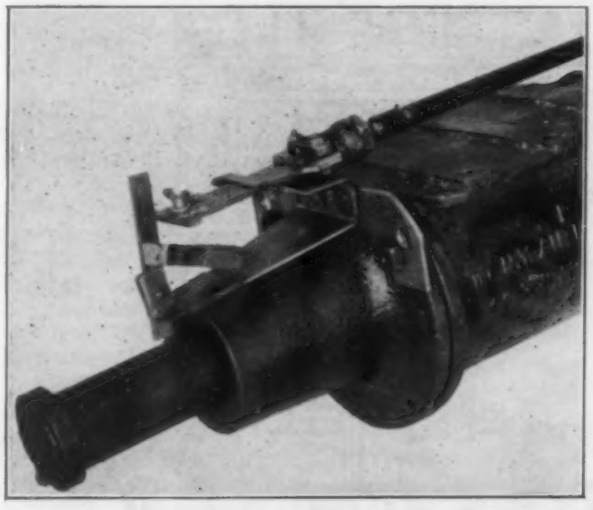
are fitted with cloth sleeves to retard the flow to a slow seepage, thus keeping the waste constantly saturated with oil.

Two flat leaf springs, one on each of the arms, *B*, are fitted under the edges of the journal brass. The springs press down the arms on the waste keeping it below the center line of the journal and therefore preventing waste grabs. The recessed elbows *D* fit loosely around the journal flange and keep the device in the proper position. The elbows *D* and the caps *E* prevent the sleeves from touching the journal.

Automatic Brake-cylinder Bleeder

WITH all the remarkable improvement in air brake design and practice for freight cars, it has thus far been necessary to exhaust the air from the individual car reservoirs when breaking up trains or when making up trains and handling the cars individually in yards and at way-stations. The time lost on train schedules and by switchmen, brakemen and engine crews has been a great source of trouble and expense. The manipulation of the release valve rod has not only taken time, but has exposed men to danger where it has been necessary to run along beside the train while the air was discharging.

A new and extremely simple device has been developed and is now offered by Geo. P. Nichols & Bro.,



Nichols Automatic Brake-Cylinder Bleeder

2139 Fulton street, Chicago, by means of which a single pull or push of the release valve operating rod will open the bleeder valve and allow the air to exhaust, until the complete release of cylinder air pressure and return of the push rod to release position automatically closes the valve. This device, the operation of which is plainly evident from the illustration, is easily and quickly applied to all standard equipment and actuates the bleeder valve already on the car. It can be applied to either the top or bottom of 8-in. or 10-in. cylinders.

It is not necessary to take the car to the repair track for application of this device. By its use, one man can bleed from six to ten cars while a single car is being released by the present method and it is said that a train of 70 cars can be marked and bled off in ten minutes. Sticking brakes can be bled off as cars pass, and waste of air from the wedging open of release valves is eliminated.

A Spring-cushioned Truck Side Bearing

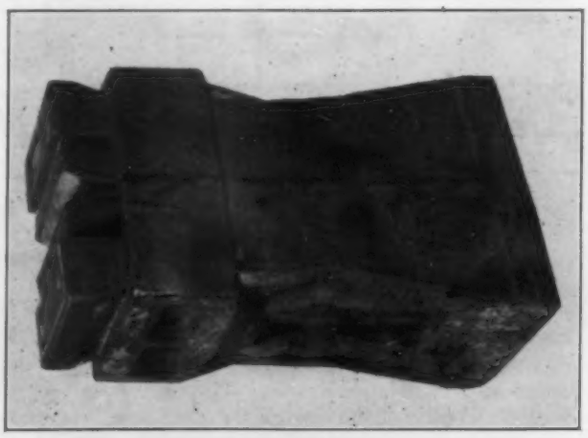
A REDESIGNED side bearing, which is included in the exhibit of the Buffalo Brake Beam Company, 32 Nassau street, New York, is proportioned to conform to the A. R. A. bolster attachment. The operating features comprise two semi-elliptic springs, one inverted and both held together by a common band. The

The Buffalo "Little Giant" Absorption Side Bearing

top or lighter spring receives the initial car roll load and the lower or heavier spring receives the overload. A special feature of this device is that it is constantly in contact with the body bolster bearings, thus through its flexible contact absorbing all of the initial vibration and shocks at the source and thereafter. This feature is claimed to protect the truck springs from breaking and going solid and also acts as an auxiliary which equalizes the car roll. The casing comprises three self-contained pieces with springs enclosed therein.

Friction Draft Gear for Heavy Duty Service

A FRICTION draft gear designed for use on modern freight cars, is a part of the exhibit of the Waugh Equipment Company, Chicago. The wedge-springs produce a uniform pressure between the friction



The Waugh-Gould Type 402 Friction Draft Gear

surfaces. The lead insert, keyed into the wedge, reduces the wear to a minimum and maintains the proper co-efficient of friction.

It requires a 26¾-in. drop of a 9,000-lb. tap to close

the gear. Its absorption capacity is rated at 80 per cent. It is designed for a 2¾-in. travel and has a constant frictional area of 210 sq. in. with a variable friction area of 76 sq. in. Each gear weighs 379 lb. and requires one 2¼-in. standard follower.

Machine for Showing the Action of Couplers

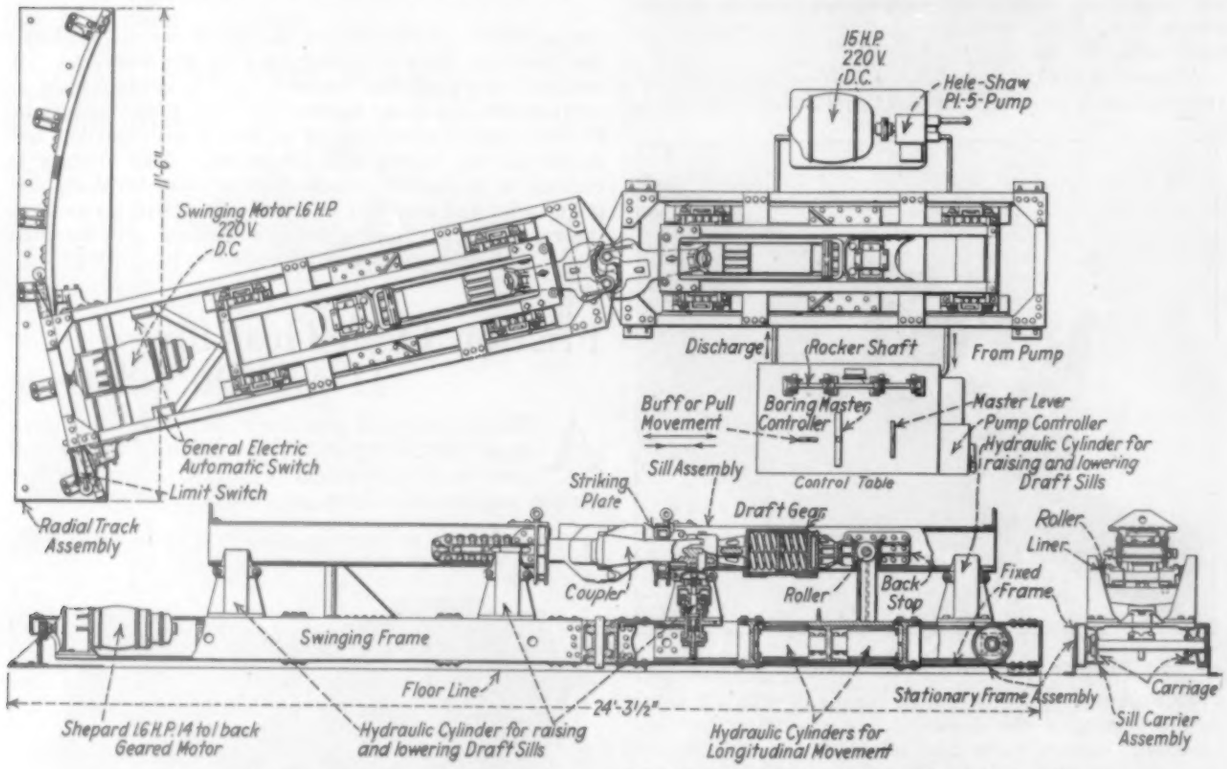
A REDESIGNED demonstrating apparatus which illustrates the behavior of the standard freight coupler under service conditions is included in the exhibit of the Symington Company, New York.

The device represents the opposing end construction of two A. R. A. cars, each pair of draft sills being equipped with striking castings, standard draft attachments, a backstop and a full length draft gear of 2¾ in. travel. All the relative movements of the two car ends with respect to each other take place in any desired order or combination at the will of the operator stationed at the control table.

By reference to the illustration, it will be noted that each pair of draft sills is supported at the ends by a hardened roller running in carefully fitted ways in the backstop casting. This roller and support serve as an anchorage for the draft sills. End movement of the latter, in either direction, is secured by the movement of the carriage within the foundation frame. This movement is controlled by opposing hydraulic cylinders connected to the permanent foundation frame. The hydraulic rams act against a diaphragm casting riveted to the carriage. The roller arrangement permits vertical and tilting action of the draft sills in combination with longitudinal movement.

The device is operated with oil under a pressure of 1,500 lb. per sq. in. by a motor-driven Hele-Shaw pump manufactured by the American Fluid Motors Company.

The operator has before him a control table from which project the various operating levers. Extending horizontally from the front of the table are the four levers which control the four lifting cylinders. On top of the table, to the left, is the lever which controls the horizontal movement that causes the draft sills to move towards or away from each other, giving full draft gear travel in each direction with a total load of 30,000 lb. on the couplers. The lever in the center operates the reversing controller



Plan and Elevation Views of the Symington Machine for Showing the Action of Couplers

hydraulic cylinder, by means of which either end may be raised or lowered either simultaneously or independently.

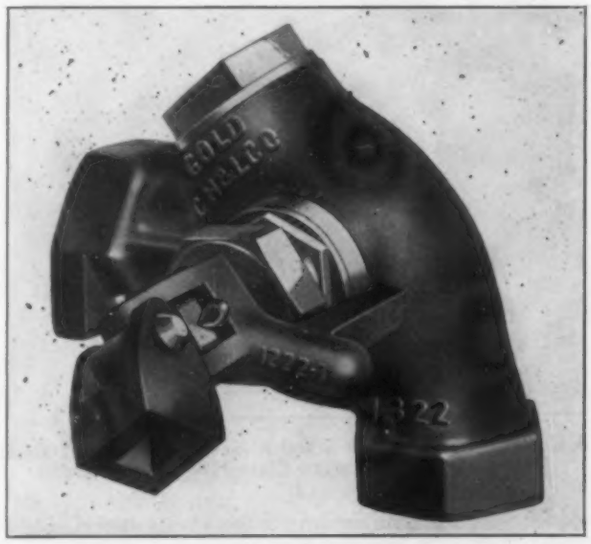
These hydraulic cylinders in turn rest on the top flanges of a foundation frame. The right frame is permanently fixed in position while the left frame is pivotally connected in the plane of the coupler contact, its outer end swinging radially by power. With this feature, conditions obtained on track curves of any degree may be studied.

Within each foundation frame there travels a carriage from which there projects upwardly an extension carrying which governs the swinging movement of the left half of the device. The lever to the right is a master lever operating the rocker shaft at the rear of the table. The levers on this shaft can be quickly set for various combinations so that a regular sequence of separate or concurrent motions can be secured.

Previous coupler demonstrators of this general type have not been operated with a high enough coupler load so that the service action could be duplicated, but with the increased capacity of this machine, the couplers and draft attachments can be put through all their service paces.

Two-Inch End Valve for Use With Metallic Conduit

THE Gold Car Heating & Lighting Company, Bush Terminal, Brooklyn, N. Y., has included in its exhibit a series of four redesigned 2-in. end valves, varying in outside dimensions to meet the requirements set up in differences in car construction. The inside



The Gold No. 1322, 2-in. End Valve for Steam-heat Connections

mechanism and all working parts, including the platform and side step attachments, are identical in all four valves and are interchangeable.

The design of the body eliminates a decided right-angle turn for the purpose of lessening steam friction to a minimum. A quarter of a turn fully opens and closes the valve easily against any train line pressure. In the closed position, a leakage port allows the escape of condensation from the rear of the last car.

A free flow of steam of full volume passes through the valve and to give the valve all the leeway possible, the diameter of the seat opening has been made 2¼ in.

Compound for Cleaning Box Car Floors

THE Dearborn Chemical Company, 310 South Michigan avenue, Chicago, is exhibiting a special powdered cleaner, designated as Cleaner No. 4, which is used for the purpose of removing grease, oil and dirt from the floors of box cars in which grain, sugar and flour are to be transported.

Cost of Cleaning Car Floors with Cleaner No. 4 Compared with Present Practice

PRESENT PRACTICE	
2.38 lb. soda ash at 1½ cents per lb.	$ .036
.86 lb. hydrate of lime at .0057 cents per lb.	.005
(6 gal. hot water with above quantities used per car)	
3 hour labor at 52 cents per hour	1.56
Adzing floor average per car, labor ¼ hr. at 68 cents per hour	.170
Total	$1.771
PROPOSED PRACTICE—DEARBORN CLEANER NO. 4	
2¼ lb. Dearborn cleaner (6 oz. per gal. of hot water) at 10 cents per lb. (carload price)	$ .225
(6 gal. hot water with above quantity used per car)	
2 hour labor, at 52 cents per hour	1.040
Total	$1.265

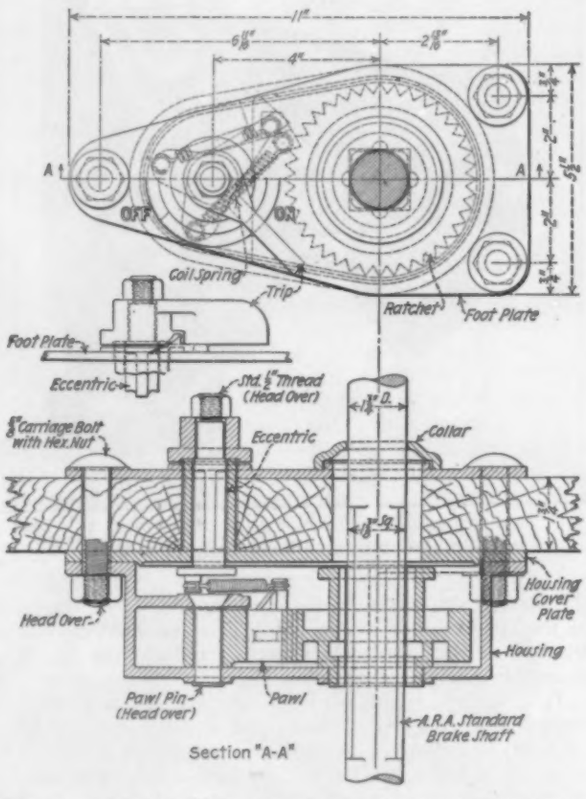
It is interesting to note the actual saving which may be realized, both in quantities of materials used and time for cleaning box car floors.

One of the leading railroads in Chicago recently demonstrated what could be expected from the use of Cleaner No. 4. The table shows that a saving of .506 cents per car was effected by using Cleaner No. 4, over the present practice of using soda ash, lime and an adz, to remove the oil spots from the car floor.

A Weather Proof Hand-brake Ratchet

A WEATHER-proof ratchet arrangement for use with any hand brake having the ordinary A. R. A. type of vertical brake staff, has been developed and is being exhibited by the Union Railway Equipment Company, McCormick building, Chicago. This arrangement takes the place of the ordinary ratchet wheel, pawl and pawl plate located on top of the brake step.

The ratchet is located on the under side of the brake step and is so designed that the ratchet, pawl and oper-



The Arrangement of the Ureco Weather-proof Hand-brake Ratchet

ating parts are enclosed in a housing which protects these parts from rain, snow and cinders, insuring an operative ratchet at all times.

The ratchet wheel is designed to hold whatever power is exerted on the shaft in setting up the hand brake. Exhaustive tests and experiments have been conducted with the 16- or 18-tooth ratchet wheels which show that they will hold only about 50 per cent of the force applied on the brake staff. These experiments have shown that when a hand brake is set up by a brakeman, the ordinary ratchet and pawl will hold a force of about 1,500 lb. pull

on the hand-brake chain, whereas, the brakeman may have applied a force of 3,000 lb. This is because of the limited number of teeth on the ratchet and the fact that the brakeman could not exert enough force to pull the ratchet wheel up to the next tooth. The Ureco ratchet has 40 teeth as compared with the ordinary 16 teeth.

The ratchet can be used on the ordinary brake staff as well as on high-power hand-brake staffs.

Redesigned Two-Inch End Train-Pipe Valve

THE Vapor Car Heating Company, Railway Exchange, Chicago, is exhibiting a redesigned 2-in. end train pipe valve which is of the quick-opening type, operated by cam leaver action to permit its easy opening against high steam pressures. When in

The Vapor No. 1104 End Train-pipe Valve

the open position, the valve seat lifts free from the path of the steam and provides a full 2-in. unobstructed area throughout the valve, which greatly reduces the pressure drop through the steam train line.

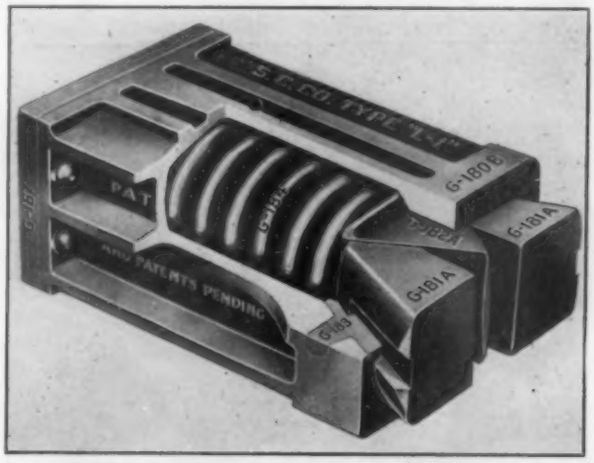
It is designed with an internal cam lock action automatically to hold the valve in the open position. It is claimed that neither vibration nor steam pressure can close the valve until the friction lock has been manually released. Ease of operation is obtained by the use of an auxiliary valve to break the pressure before the main valve is opened.

The design of this valve provides for the usual bleed port for releasing condensation at the rear of train. A slight movement of the handle opens the bleeder. The auxiliary valve, a ⅞-in. port, is opened with a further movement of the handle, which exhausts or releases the high pressure and makes comparatively easy the lifting of the main valve to open the end valve wide when the pressure is on the train line.

The valve is adapted for use with either stationary or movable type drawbars and is arranged for operation both from the ground and the car platform.

Chafing Plate Included in Type L-1 Draft Gear

INCLUDED in the exhibits of the Standard Coupler Company, 420 Lexington avenue, New York, is the company's Type L-1 draft gear which differs from the Type L in that chafing plates have been provided to



A Cut-away View of the Standard-Sessions Type L-1 Draft Gear in Which a Chafing Plate Has Been Included

reduce wear to a minimum on the spring barrel, which serves both as a housing for the friction elements and as a column to receive oversolid blows.

The gear is a self-contained unit the internal parts of which are interchangeable with the Type L. Space is provided for the plates by removing the proper amount of metal from the belmouth of the barrel casting, which metal was somewhat excessive in the ell to allow for wear on the barrel itself. The gear is 22⅜ in. long, requires one follower per gear, has a 2½-in. all-friction travel, with a minimum capacity of 24½ in. under the blow of a 9,000-lb. weight. The barrel is made of cast steel and has a minimum cross section of 21 sq. in.

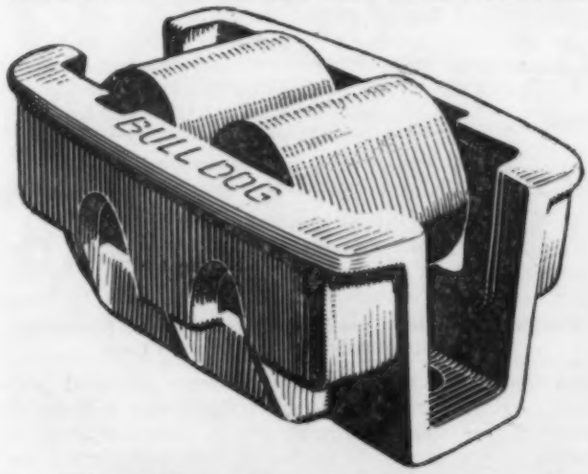
Wine Bull Dog Side Bearings

AMONG the exhibits of the Wine Railway Appliance Company, Toledo, Ohio, will be found the Bull Dog side bearing which is designed to suit the particular capacity of car to which they are applied. The heavier the car the greater the side bearing load. Side bearings whose dimensions and strength are adequate properly to function under and to withstand these loads make for lower maintenance. The Wine Bull Dog side bearing consists of a cast steel housing carrying twin rollers. Both the housing and rollers are made of high carbon electric steel, heat treated and tempered, giving all wearing surfaces an equivalent hardness. The rollers are secured in the housing by integral lugs cast on the ends, which operate in a slot in the housing. They permit unlimited travel, are self-centering, self-cleaning, and permit free turning of the trucks at all times.

Unlimited truck movement is provided, due to the shape of the rollers. When the rolling travel is complete the flat surface of the roller is brought into position, providing unlimited sliding travel. The flat sides are tangent to the top rolling surface, and in the two extreme positions are parallel to the wearing surface in the bottom of the housing. Therefore, regardless of the movement,

the top of the roller is always at the same height in every position.

With these side bearings, side-bearing clearance can be maintained. Less than 1/16 in. is needed to permit the rollers to return to the center. A clearance of 1/8 in. is recommended on each side, or 1/4 in. total side-bearing clearance per truck.



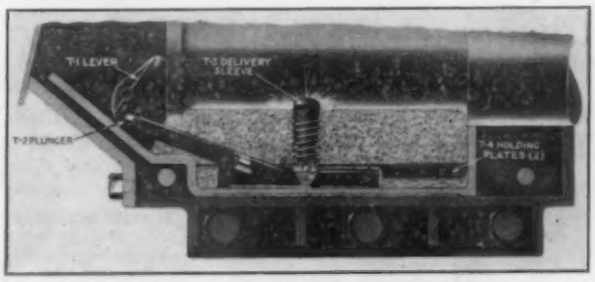
Bull Dog Side Bearings are Designed to Permit the Maintenance of Constant Clearance

Wine Bull Dog side bearings provide rivet spacing in the housing to correspond with the A. R. A. spacing in the truck bolsters.

A Mechanical Journal Lubricator for Freight Cars

A FREIGHT car journal lubricator which delivers oil of any consistency by mechanical action to the face of the journal when the car is in motion, in addition to the oil delivered by the waste, is being exhibited by J. J. Hennessy, 136 Liberty street, New York. The body of the pump is made of bronze. In one end of the body is pressed a bronze plug, through which is drilled a small oil feed hole. A metal intake flap valve covers the inner end of the plug. The oil is drawn into the end of the pump body through a perforated screen crimped into the opening in the body of the device through which the plug was located, and through small holes drilled through the body casting, outside of the intake plugs.

Attached to the other end of the frame is a bell crank fulcrumed on a pin which is held in place by a split key. The lateral motion of the axle causes the bell crank to move a small piston which works against a coil spring set in a counterbore in the pump barrel. The action of the piston draws in the oil and forces it up through the bronze outlet tube, which is of telescoping construction. The upper end of this tube is enlarged to form a shallow recess or cup, the sides of which fit the contour of the journal. The surface of the recess exposed to the journal is made sufficiently large so that it will center itself against the journal and so that the oil pressure from the pump will prevent it from sealing the oil outlet at the edges of the recess which bear against the journal surface under the pressure of a light coil spring around the outside of the telescoping tube.

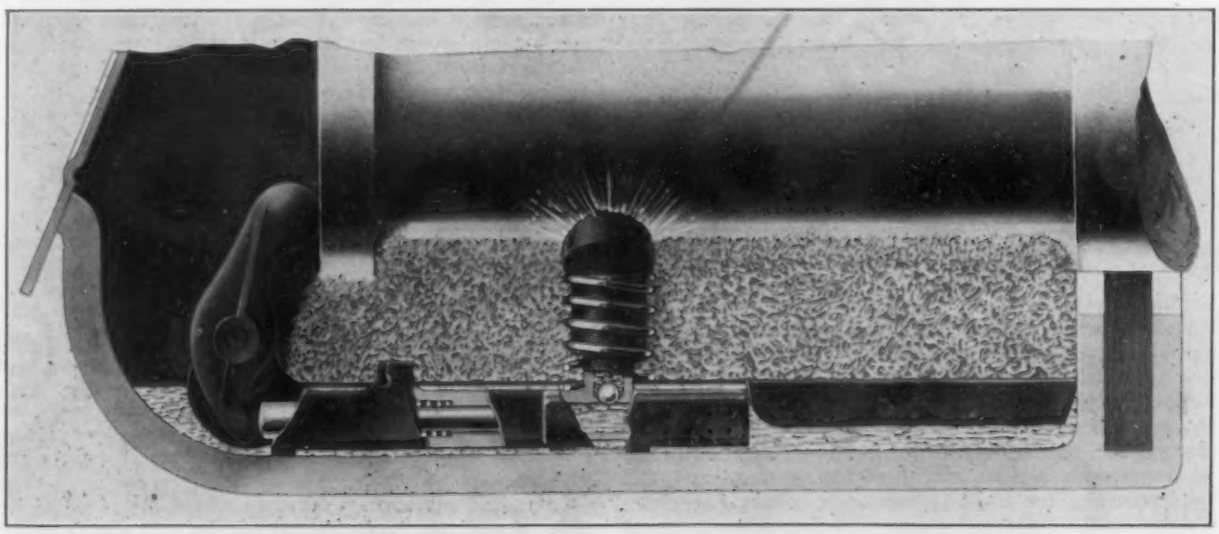


Application of the Hennessy Mechanical Lubricator to an Outside Trailer Journal Box

The purpose of the telescoping delivery tube is to permit the lowering of the upper end of the tube, by compressing the spring, a sufficient amount so that the lubricator can be inserted in and removed from a standard A. R. A. journal box, without disturbing the brass or wedge. A light wire hook attached to the pump body is provided to hold the tube down when telescoped. In inserting the lubricator this is easily unhooked with a packing iron.

The pump body and a light metal shield are placed in the bottom of the journal box. The shield serves to hold the lubricator in the center of the bottom of the journal box and to form an oil well beneath the packing.

The Hennessy journal-box lubricator insures the de-



A Sectional View of the Hennessy Mechanical-action Journal Lubricator

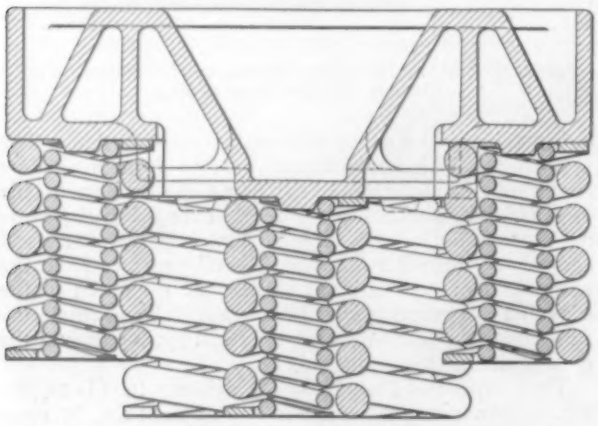
livery of a constant supply of free oil to the journal while the car is in motion, even after the loss of the higher volatiles may prevent the oil from feeding through the waste in sufficient quantity by capillary action. This delivery of fresh oil to the journal and to the surface of the waste also prevents the packing from glazing.

An adaptation of this device for use in an outside-bearing trailer box is shown in one of the illustrations.

Changes in the Scullin-Dalman 70-Ton Truck Frame

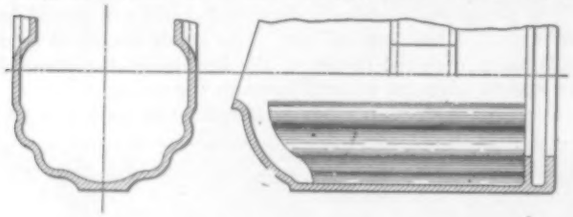
A 70-TON freight car truck frame of the Dalman type, in which several changes have been made, is being exhibited by the Scullin Steel Company, 6700 Manchester avenue, St. Louis, Mo.

The top member of the truck side frame acts as a



The Strengthening Ribs Assume a Truss Form in the Redesigned Scullin-Dalman Type Bolster

column or strut in resisting the vertical load stresses. For this reason, this member is usually referred to as the compression member. In resisting the transverse forces,

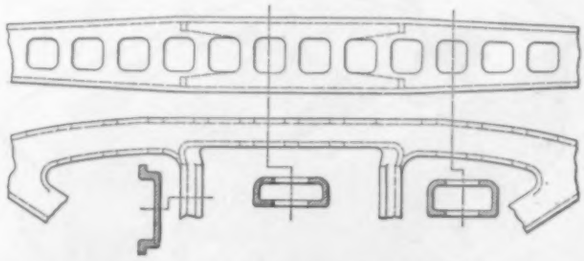


The Journal Box Is Stiffened by Corrugations

the top member functions as a beam, but the stresses from to the latter function are usually considered secondary. Some designers found it advisable to connect the outer edges of the U-section type compression member. This has been necessary as the flanges have a tendency to buckle under high static vertical loads. The Scullin Steel Company has been experimenting with various types of web or lattice bracing. The truck on exhibit employs the latter type of bracing, as shown in one of the illustrations.

The journal boxes of the integral side frame are corrugated. The corrugations add to the stiffness of the journal box structure, and in no way interfere with the proper packing and inspection of the waste.

Heretofore, the ends of the truck bolster have been strengthened by vertical walls. For foundry considerations, the walls have usually extended lengthwise of the bolster. Webs of this type are open to criticism. If they do not extend to the top wall of the bolster, higher stresses come on the upper edge of the rib. In case they connect with the top wall of the bolster, both the bottom

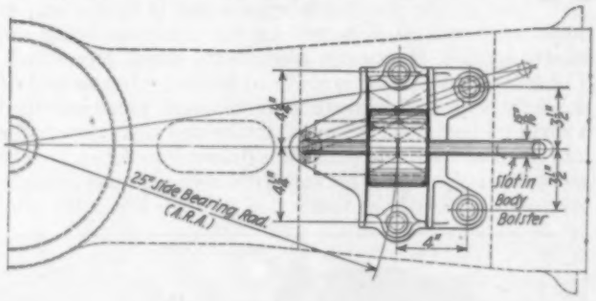


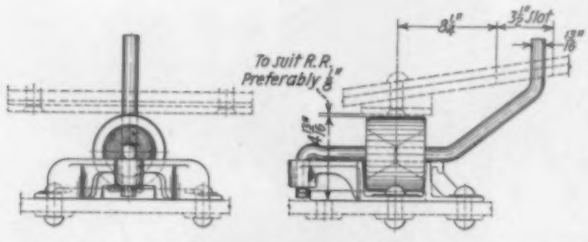
The Integral Baton-plate Design Now Used To Strengthen the Top Member of the Truck Frame

and top of the bolster tend to assume a curved position, and neither very great strength nor stiffness is secured by this construction. A new method of strengthening and stiffening the bolster end is employed in the Scullin-Dalman type bolster. The strengthening ribs assume a truss form which tends to transmit the forces directly to the side walls and to reduce the tendency for the structure to change its form. In order to resist local buckling, the webs are given a circular section.

Goodwin Self-Spotting Type C Side Bearing

THE Type C side bearing exhibited by the Goodwin Side Bearing Company, Inc., 420 Lexington avenue, New York, differs from this company's Type A bearing in that the attaching rivet arrangement is designed





Goodwin Type C Side Bearing Provided with a Reversible Spring-steel Roller Seat

for the new A. R. A. truck bolsters. The Type C is also provided with a reversible spring-steel roller seat. The roller seat is a rectangular piece of steel which snugly fits in a slot directly beneath the roller. In order to reverse the seat, the guide rod is removed which allows sufficient space beneath the guide rod lug for the steel seat to be removed and replaced. The end of the roller guide rod

which extends through the lug, prevents the seat from sliding out of the slot. The roller itself revolves, constantly presenting a new bearing area. In the earlier type, the roller bearing received substantially all of the hammering in one location and consequently, was the first part to show indentation even though it was made of spring steel. Hence, the provision for the new bearing surfaces and the simple method of reversing this part, together with the positive means of holding it in place.

Bradford Type F Draft Gears

FRICTION draft gears of a design embodying several new features are being shown in the exhibit of The Bradford Corporation, New York. The Bradford Type F-5-B, which is the standard freight gear of this type, is illustrated in Fig. 1. Fig. 2 is a sectional

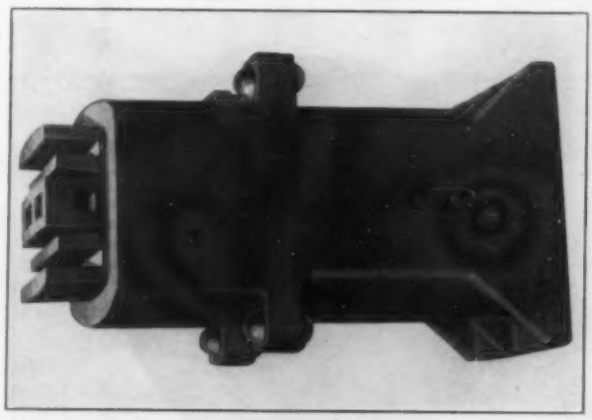


Fig. 1—The Bradford Type F-5-B Draft Gear Standard for Freight Cars

view of the same gear, showing the internal construction.

In this gear the load is applied to the central wedge *A*, Fig. 2, and two outer friction shoes *B* by the standard follower. The central wedge acts against the central friction shoes *C*, tending to force them outwardly against the friction plates *D* which in turn bear upon the outer friction shoes. The cylindrical surfaces of these outer shoes bear against the correspondingly curved inner friction surfaces of the friction housing *E*.

The inner friction shoes bear upon the inner coil of the double coil spring *Fa* while the outer friction shoes make contact with the outer coil of the spring *Fb*. The friction plates are prevented from more than 1/16 in. movement in the direction of gear closure by their lugs *G* coming in contact with retaining ledges *H* at the inner end of the friction housing. Since the distance between the curved surfaces of the friction housing decreases toward their inner ends, movement of the central friction shoes, caused by pressure from the central wedge, forces the shoes toward each other. This makes the pressure on the friction surfaces much greater than if there were no taper in the walls of the friction housing. Upon the return of the gear to open position the converse is true, the taper of the housing facilitating the release of the friction members.

As the gear is released, all of the movable friction parts move outward 1/16 in. as a unit, until the lugs *G* at the ends of the friction plates touch the retaining ledges *J* at the outer end of the friction housing. At this point there is a tendency to loosen the friction members so that the inner and outer friction shoes move more freely and positive release is assured. This arrangement with six friction surfaces develops high capacity with unusually low tensile stresses in the housing.

A slight amount of clearance is allowed between the side of each outer friction shoe and the housing. This permits the shoes to shift about the axis of the curved side, insuring equalization of pressure over the friction surfaces.

The gear is assembled with initial compression in the springs, amounting to 10,000 lb. When the gear is fully closed, the outer coil is still open ¼ in. and the inner coil 3/16 in., the combined spring resistance being 46,700 lb. at gear closure.

The Bradford Type F draft gears have relatively large frictional area and the materials for the friction members are heat-treated to minimize wear. When wear becomes sufficient to reduce the capacity of the gear, the original capacity can be restored by applying new friction plates.

All gears of this type are shipped as assembled units adapted for application to either vertical or horizontal coupler yokes, one standard A. R. A. follower per gear being required for application with the latter.

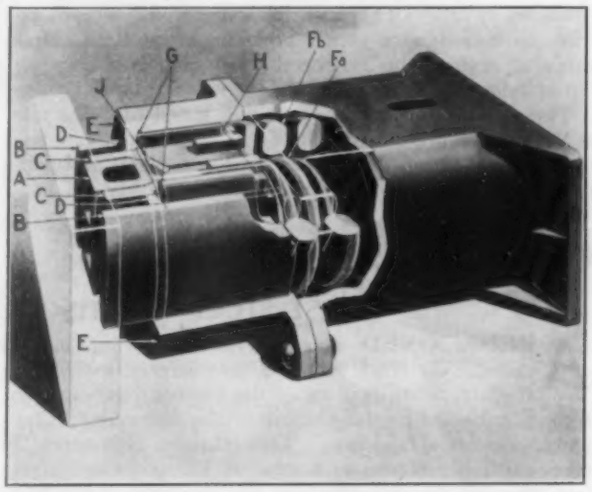


Fig. 2—A Sectional View Showing the Internal Construction of the Type F-5-B Gear

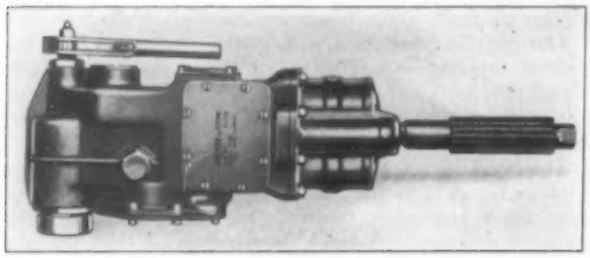
The Type F-5-B gear is 22⅜ in. long to suit the 24⅝-in. gear pocket, and has a travel of 2½ in. The Type F-6 gear is 16¼ in. long for application with 18½-in. draft lug spacing and has 2 in. travel. The Type F-5-D friction gear can be furnished when 2¾-in. gear travel is required. It has the same overall dimensions and general characteristics as the Type F-5-B gear.

Air-Operated Close-Quarter Drill

A GEAR-DRIVEN close quarter drill with a two-cylinder double-acting air motor is on exhibition at the booth of the Ingersoll-Rand Company, 11 Broadway, New York. It is known as the size 90 close-quarter drill and has been brought out for general drilling, reaming and tapping. It develops approximately 20 per cent more horsepower and has 10 per cent higher stalling power than older types of close-quarter drills.

Minimum thickness of the machine has been secured by making it flat, the drill being practically the same thickness from the spindle to the cylinders. Smooth

operation has been secured by arranging the pistons to act at right angles to and in a plane with the spindle by using a counter-balanced crank and by using special gears for the drive. The gears are rugged, their size and strength being increased as the load carried increases. The final drive on the spindle is through a heavy herring-



Drill Designed for Work in Close Quarters

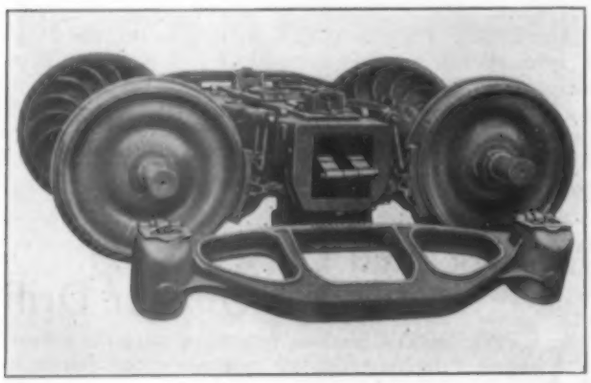
bone gear which gives a smooth and steady driving action. Anti-friction bearings of the ball or roller type are used throughout.

Three different spindles can be furnished, the standard spindle having a No. 4 Morse taper socket. A threaded spindle 1 11/16 in. in diameter, 12 threads per inch, to take square socket chucks or the Rich chuck, can also be furnished. The third spindle is a Use-Em-Up spindle which has a No. 4 Use-Em-Up taper.

The drill has an average working speed of 140 r.p.m. at 90-lb. pressure and weighs 41 lb. The length of feed is 2½ in.; it reams 2-in. holes, taps 2-in. holes and drills holes 3-in. in diameter. The length over-all is 9¼ in.

Caboose Car Truck with Cast-steel Transom

A REDESIGNED special type of swing motion caboose car truck which is now offered with a cast steel transom in place of the former built-up transom, is included in the exhibit of the Bettendorf Company, Bettendorf, Iowa. This change eliminates 34 pieces and 105 rivets, or a total of 139 parts and rivets per car. By this construction, the strength of the transom is materially increased without any increase in



The Bettendorf Swing Motion Caboose Car Truck with Cast Steel Transoms

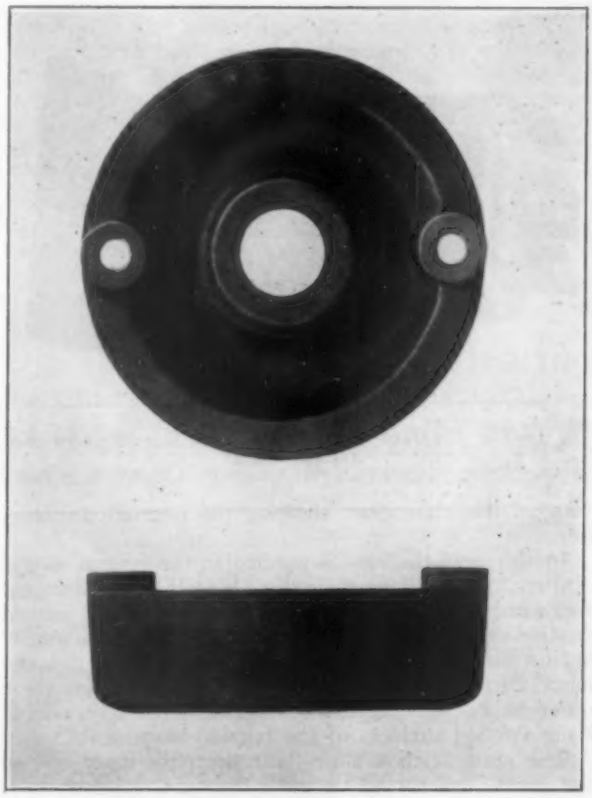
weight. The transom will retain its rigidity owing to the absence of a multiplicity of parts which were formerly held together by rivets but are now combined into an integral casting.

The truck is readily disassembled and reassembled without the use of special tools. The method of removing the side frames for the purpose of changing wheels is the same as employed on the Bettendorf freight car truck.

Flangeless Center Plate

AFTER a careful study of the causes for body center plate failure, the National Malleable & Steel Castings Company, Cleveland, Ohio, has designed and placed on the market the National flangeless body center plate.

Observation has shown that the present frequent replacement of center plates is due to broken flanges. This breakage is due to the fact that, when the body center plate filler is insecurely anchored to the center sills, as often happens, the tremendous weight of the car body and lading forces the bolster center filler up between the



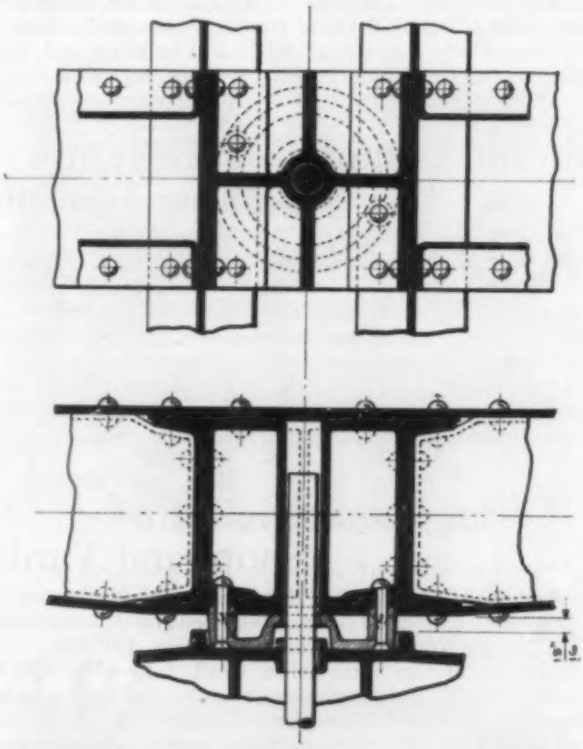
In the Design of This Center Plate the Flanges Were Omitted and Two Lugs Added

center sills with a consequent upward deflection of the bolster bottom tie plate. This condition breaks the body center plate flanges, because the spread of the center sills is greater than the diameter of the body center plate bowl, so that the full force of the deflection is thrown on these thin flanges and the heavy bowl is unable to assist them in supporting the load.

Another important factor lies in the fact that even when flange type center plates are new there is a clearance of but 3/16 in. between the body center plate flange and the rim of the truck center plate bowl. This close clearance soon results in interference between the rim of the truck center plate bowl and the body center plate flange and flange rivets.

With the most frequent cause of failure and replacement thus segregated, consideration was given to the con-

struction and the function of the center plate flanges. It was quickly seen that these flanges were never intended to reinforce the bolster construction, their sole purpose being to reach out to the under frame rivets and secure



The Flangeless Type of Body Center Plate Permits a Clearance of 15/16 In. Above the Truck Center Plate Bowl

the center plate against displacement. That the reinforcing value of this long flange is of small consequence can readily be seen by the fact that the thickness is limited to ¾ in. by standards, and there is frequently a shrinkage strain set up where these thin flanges join the heavy bowl.

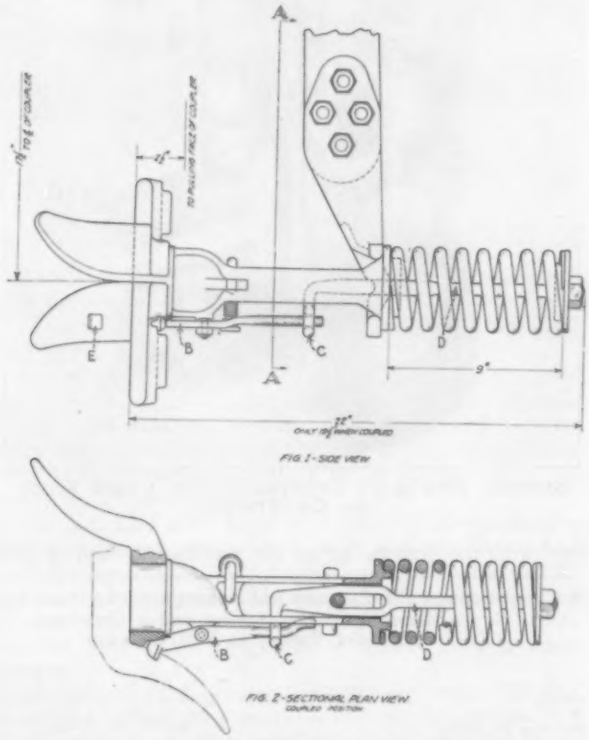
As a result the new National flangeless body center plate was designed with flanges omitted and two lugs added. These lugs have more area in shear than the eight rivets provided for the usual type of flange center plate. Rivets are inserted through these lugs and serve to secure the center plate to the body bolster when the trucks are removed.

The design of body center plate also makes possible another advantage in that the elimination of the flange permits a clearance above the rim of the truck center plate bowl of $1\frac{5}{16}$ in., or five times the clearance possible with the flange type center plate.

Robinson Connector Provided with an Automatic Lock

IN view of the fact that steam-heat pressures are being considerably increased with the advent of longer pasenger trains, the use of a position lock on passenger automatic train hose connectors may become advisable. The Robinson Connector Company, 415 Lexington avenue, New York, is exhibiting its passenger connector, Type 2-H, provided with an automatic and positive lock.

The lock consists of a forged trigger *B* pivoted at one side of the connector pipe as illustrated in Figs. 1 and 2. The rear end of the trigger is cammed and passes through an eye *C* in the forward end of the tie rod *D*. When the connector moves to the coupled position shown in Fig. 2, the trigger is rocked into the opening *E* in the wing of the connector head. When the connector is moved to the uncoupled position shown in Fig. 1, the cam swings the trigger out of the coupled



Robinson Passenger Connector with an Automatic Lock

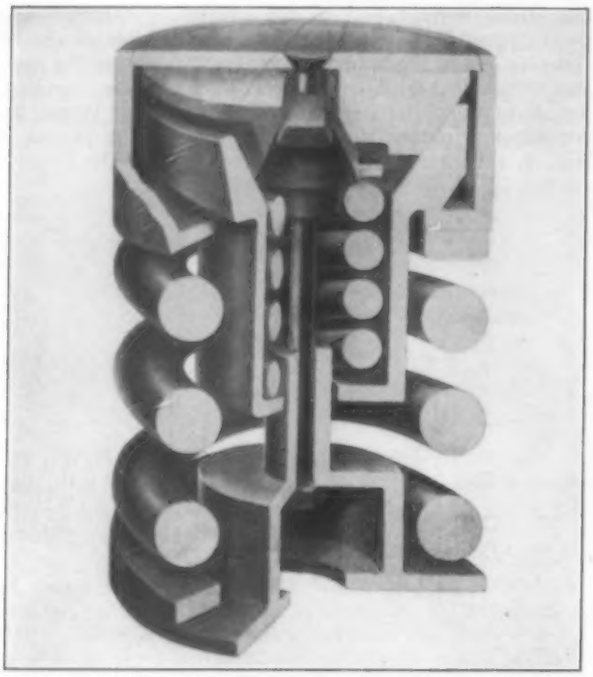
position considerably in advance of the final disconnection of the connectors. With this lock, it is said that there is no possibility of the connector heads separating even though steam at boiler pressure is sent through the train.

A Friction Bolster Spring For Car Trucks

THE Universal Draft Gear Attachment Company, Railway Exchange building, Chicago, has included in its exhibit a friction bolster spring used in conjunction with standard A. R. A. springs, making a cluster which will interchange with class B, C, D and H springs and special spring combinations. The friction bolster spring conforms to the A. R. A. standards as to diameter and heights and is usually used to replace one coil in a cluster except in heavy equipment where greater absorption is advantageous.

The new friction bolster spring is a combination of a high grade spring for load carrying capacity and a friction element having high absorption capacity together with an oversolid capacity which protects the standard springs in the cluster from destructive oversolid blows. The friction parts are made from case-hardened, heat-treated steel to provide long life and are designed to compensate automatically for wear.

In developing this bolster unit the object of the manufacturer was to provide a device which would not inter-



Sectional View of the Universal Friction Bolster Spring for Car Trucks

fere with the free riding of the standard spring, to give additional capacity in case of excessive shocks and to absorb these shocks so there will be no excessive rolling or vibration of the car body from the recoil of the truck springs.

The table shows that the Universal spring eliminates the overloading of the side frames by absorbing shocks developed, which if not absorbed will build up with additional force resulting in damage to the car truck.

A Comparison of the Capacity and Absorption of a Two-Coil A. R. A. Standard Bolster Spring and a Universal Friction Bolster Spring at Full Capacity

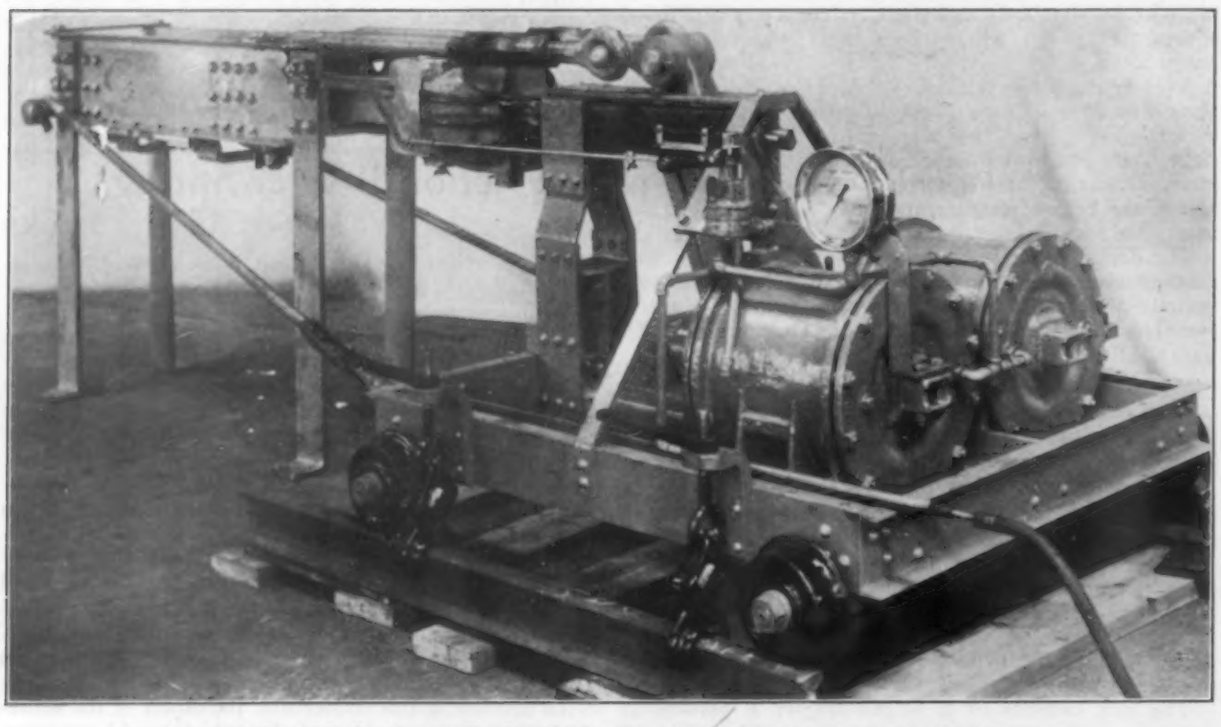
	A. R. A.	Universal
Work done	1,170 ft.—lb.	1,830 ft.—lb.
Recoil	1,066 ft.—lb.	560 ft.—lb.
Work absorbed	104 ft.—lb.	1,270 ft.—lb.
Per cent absorption	8.9	69.4
Capacity at closing	16,000 lb.	45,000 lb.
Vibrations before rest 9,000 lb. load	14 to 18	2

Steam Compressor Governor For Superheated Steam

A DESIGN of steam-driven air-compressor governor suitable for superheated steam, is being exhibited by the Westinghouse Air Brake Company, Wilmerding, Pa. It has a heavier body of cast iron, to withstand the effects of greater pressure and temperature, non-corrodible seats in the union connections, non-corrodible steam valve and bushing in the body, larger air piston with removable brass bush, larger regulating valves, and improved adjustment feature.

Testing Draft Gears in Shops and Yards

A DEVICE for testing the efficiency of draft gears in shops and yards is being exhibited and demonstrated by the Waugh Equipment Company, Chicago. The device is in the form of a small four-wheel truck equipped with a dummy coupler and capable of attachment to the car and its coupler and to the rails. By means of applied air and appropriate measuring devices, an approximation of a laboratory test of the gear's capacity after extended service may be made without removing the gear from the car. This car may be moved from car to car or from track to track wherever air is available.



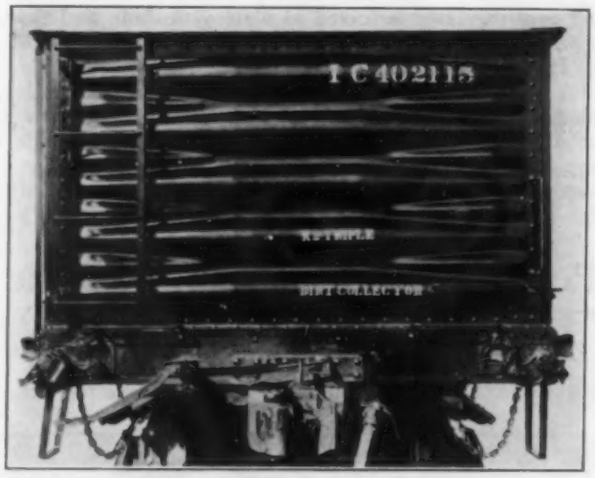
A Portable Draft-gear Testing Device for Use in the Shop or Repair Yard

Dreadnaught Steel Car Ends

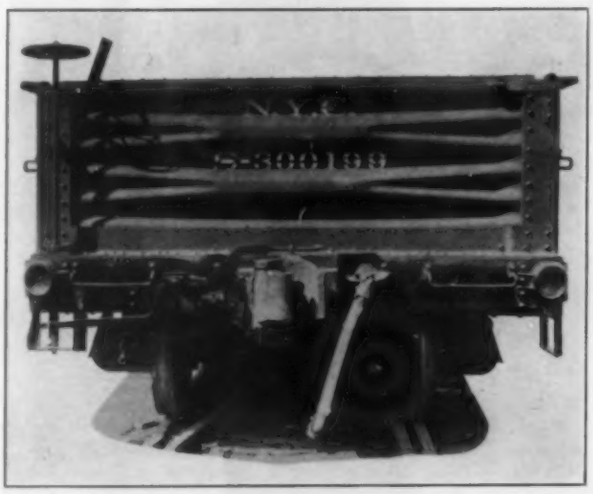
THE Union Metal Products Company, 310 South Michigan avenue, Chicago, is exhibiting a steel end for wood or steel cars and a steel drop end gate, both for use on gondola cars. The Dreadnaught steel end is designed as a series of merging arches with tapered ends, the spaces at the ends being filled with short corrugations which given the sectional structure of the Murphy corrugated steel end. Deepest at the center, each long corrugation is correctly tapered to give the utmost resistance to a blow or load.

The tapered beams of the Dreadnaught drop end gate are deepest in the center and taper out to the side flanges. Each corrugation merges, one with the other, and assists in holding the gate from distortion.

The special tension hinges prevent the gate from being forced up and out at the bottom while permitting it to lie flat on the floor when down.



The Dreadnaught Steel End as Applied to a Steel Gondola Car



A Gondola Car Equipped with a Dreadnaught Steel Drop End Gate

Changes in Midland Door Hanger

A REDESIGNED baggage-car door hanger in which certain malleable castings have been replaced with drop forgings is included in the exhibit of the Midland Company, South Milwaukee, Wis.

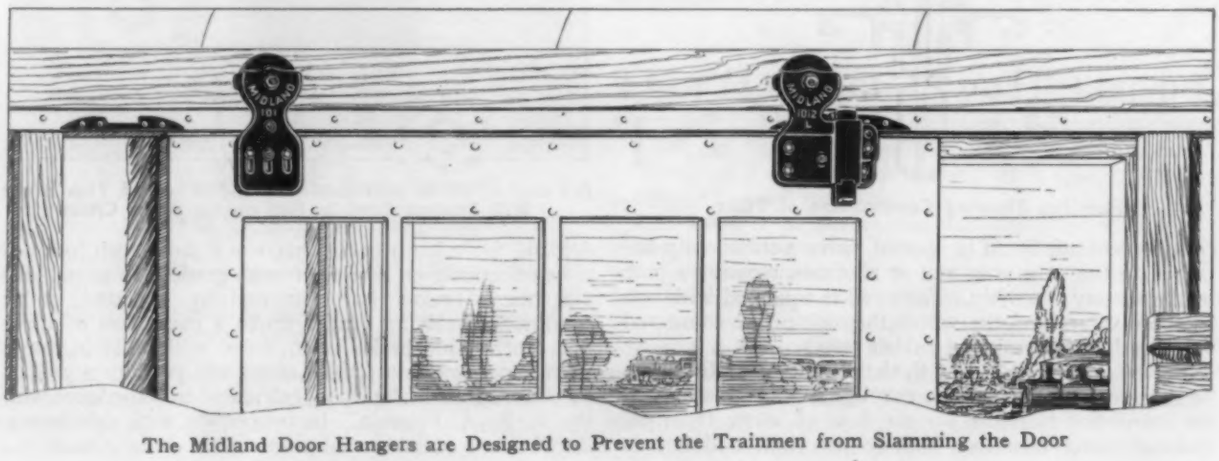
The wheels of the device are now turned from a solid bar of S. A. E. 1020 steel, and the heavy axle is made of the same material. On the axle is mounted a Hyatt roller bearing which fits into the bore in the wheel. These parts are all machined to close limits so that the wheel runs true, without any side-play.

The No. 12D door stops and No. 12C stop bolts are now drop forgings made of S. A. E. 1020 steel instead of malleable castings. They have also been redesigned so that the wearing surfaces have been increased in size over 200 per cent. With the new design, the hanger will pass over the stop without engaging when the door is being opened.

The hanger stop prevents the hanger from jumping the track or from going past the door stop when the door is slammed shut. The location of this stop has been changed, as shown in the illustration.

The adjustable features of the hangers are retained without change. The new hangers are fully interchangeable with the old design, and the parts that have been changed are interchangeable with the old parts in the hanger frames.

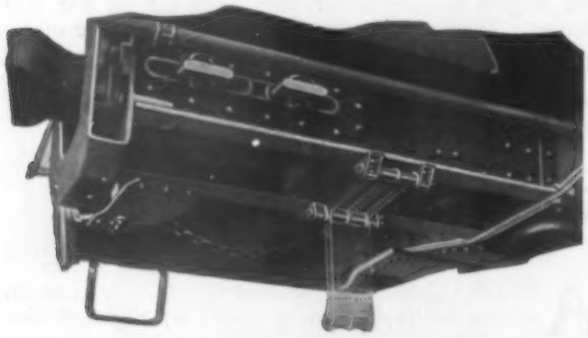
BEGINNING YESTERDAY the New York Central started the operation of a daily express passenger service between New York and Buffalo, providing de luxe accommodations without extra charge for coach passengers. The coaches have individual seats and wash rooms, with hot and cold running water. There is an observation car, dining car and porter service.



The Midland Door Hangers are Designed to Prevent the Trainmen from Slamming the Door

Hinged Draft-gear Carrier

AMONG the exhibits of the Buffalo Brake Beam Company, 32 Nassau street, New York, is a hinged draft-gear support or carrier which is a one-man inspection device. It is designed with a long bearing hinged construction permitting instant and easy removal



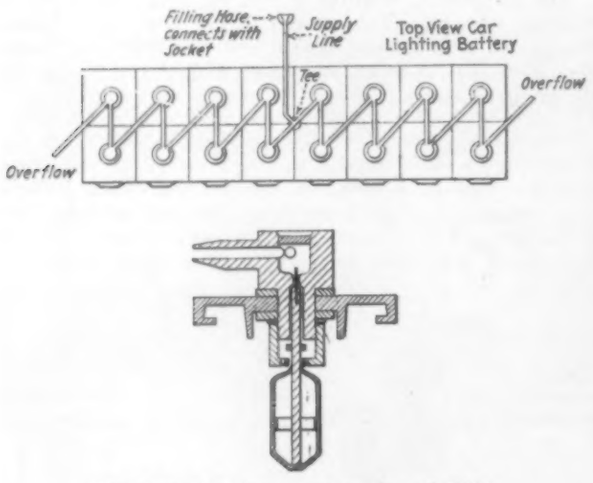
Buffalo Hinged Draft-gear Carrier

and replacement of the gear on either side of the car from the outside of the center sills by the removal of a pin. This permits the carrier to remain suspended to the car during inspection after which it is swung in place and the pin inserted, securely locking it in place. Any adjustment above or below the bottom line of the center sills can be made to suit conditions.

Fry Battery Filler

A battery flushing device which requires the service of but one man for its operation and which automatically brings the electrolyte to the proper level in a minimum of time is being exhibited by the Sunbeam Electric Manufacturing Company, Evansville, Ind.

The device, which is known as the Fry battery filler,



Sketches Showing Construction of Filler

consists essentially of a special valve permanently attached to the vent plug and at all times remains a part of the battery assembly. Each cell is equipped with one of these valves and the valves themselves are connected together by acid resisting rubber tubes.

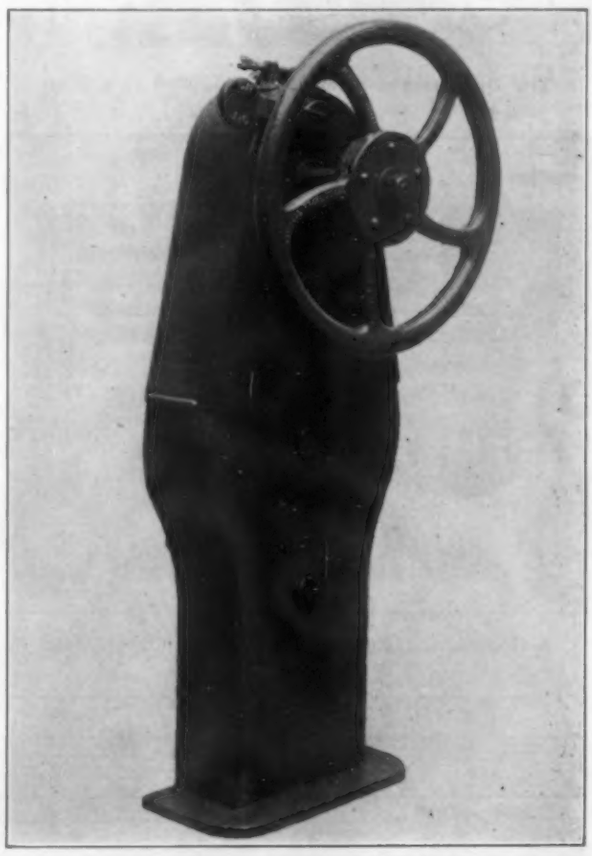
Between cells No. 8 and 9, the middle of a 16-cell assembly such as is used in car lighting installations, a tee connection provides for the flow of water from the distilled water container both to the right and left as it enters the flushing system. When a cell is flushed, the float rises and closes the valve, thereby cutting off the supply of water. When all cells are filled to the proper level, water will flow from tubes at the right and left of the battery assembly which is a signal for the operator to cut off the supply of distilled water.

It is claimed that this battery flusher reduces by 50 per cent the labor involved in battery flushing and that a set of 16 cells can be flushed by one man in from 12 to 15 minutes.

A float and valve assembly is such that it can be readily removed from the battery without disconnecting or disturbing the assembly. A valve has also been designed which permits its operation with hydrant pressure for such railroads as use the local water supply for their batteries.

Peacock No. 420 Hand Brake

THE National Brake Company, Buffalo, N. Y. has recently developed a special hand brake, known as the No. 420, the design of which was suggested by a runaway electric locomotive, to meet the



A Force of 125 lb. on the 16-in. Hand Wheel of This Brake Will Produce 8,800 lb. Pull on the Brake Chain

demand for a hand brake that would hold such locomotives effectively on a one-per-cent. grade. In actual service these brakes have successfully operated under conditions involving grades up to a maximum of three per cent. This brake is equipped with a 16-in. hand wheel upon which a 125-lb. effort will produce a pull of 8,800 lb. on the brake chain, calculated in accordance with the A. R. A. formula. In connection with this heavy-duty brake a ½-in. special proof-tested chain is used.

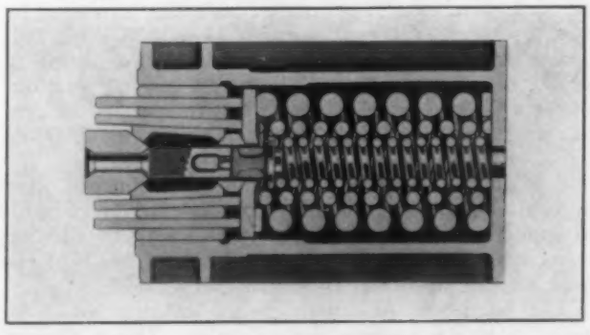
The Heywood-Wakefield Reclining Car Seat

THE Heywood-Wakefield Company, 209 Washington street, Boston, Mass., has included in its exhibit a reclining type of car seat for use in passenger cars or motor coaches. This seat can be adjusted to three positions by pressing a conveniently located button on the side of the chair. Each seat is provided with two separated back rests, each of which can be adjusted to suit the convenience of the occupant. Two removable leather upholstered seats are provided for each seat. The back rests and the edges of the wicker sides are also covered with leather. For motor coach use the chairs are supported by strong, double-clawed legs, equipped with shock absorbers.

The No. 156P Reclining Passenger Car Seat

Westinghouse NY-11 Friction Draft Gear

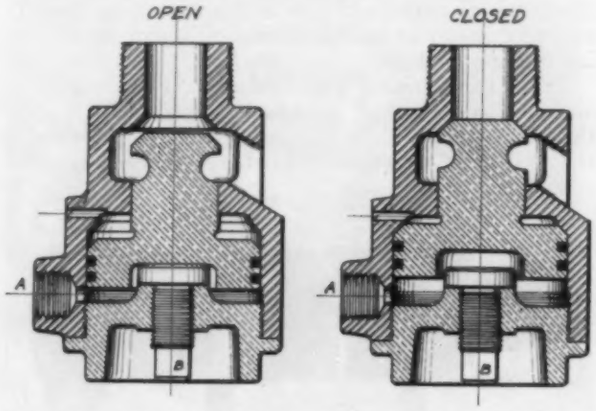
THE Westinghouse Friction Draft Gear Company, Wilmerding, Pa., has recently added to its line of draft gears the NY-11 which has all the basic characteristics of the N-11-A, with the same travel of 2¾ in. and an over-all length of 22⅜ in., but with somewhat lower capacity. It is closed by a 19-in. free fall of the 9,000-lb. tup. This gear is among the Westinghouse exhibits.



The NY-11 Draft Gear Is Similar to the N-11-A but of Somewhat Lower Capacity

Automatic Safety Cylinder Cock

INCLUDED in the exhibit of the Ardco Manufacturing Company, One Newark street, Hoboken, N. J., is an automatic safety cylinder cock which automatically closes when the pressure becomes greater than boiler pressure or when water is pocketed in the cylinders. When this pressure occurs, the plunger is forced downward against the weaker air pressure to the open position, thereby relieving the cylinder of excess pressure and preventing the blowing out of cylinder heads, breaking packing, bending piston rods, etc.



The Ardco Automatic Safety Cylinder Cock in the Open and Closed Positions

When the locomotive is drifting, these cylinder cocks remain closed, preventing air or foreign particles from being sucked into the cylinders through the cylinder cocks. They can be opened, at will, by shutting off the air to the cocks. If this should fail to be done, when the engine is placed in the terminal or enginehouse, the air will gradually leak off after the air compressor has been shut off and the plunger will drop to the open position, thereby preventing an accumulation of pressure or condensation in the cylinders.

Should one of the air pipes break while on the road, a quick repair can be made by screwing up the stop bolt *B* to hold the plunger in the closed position.

In operation, air pressure from the main reservoir connects to the operating cab valve and then to the threaded hole *A* in the cylinder cock. To close the cylinder cocks, air is admitted through the hole *A* under the large area of the plunger, holding it in the closed position against the greater steam pressure acting on the small area of the plunger.

Thor Hammer-Type Holder-on

THIS tool is particularly designed for driving rivets in tight places and corners where it is impossible to use a regular size riveter. It is also used as a holder-on to buck up rivets.

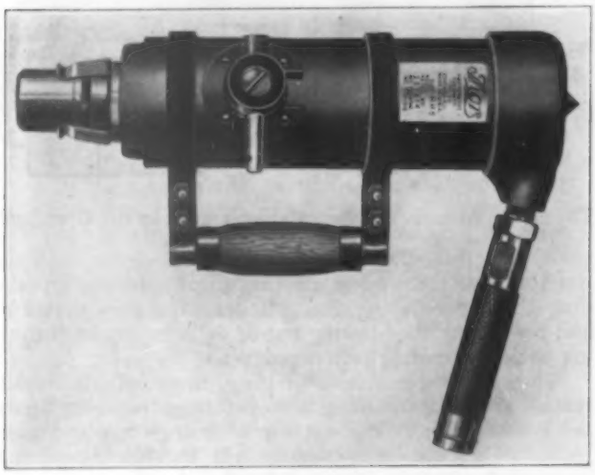
The hammer proper is the standard Thor new long stroke riveter hammer. The head block over the valve has the Thor ratchet lock to the barrel. The holder-on barrel is made of a solid piece of steel with the rear cap threaded on. Into this cap is screwed a throttle which admits and releases the air to the rear end of the hammer. The front end of the holder-on barrel is solid, with an internal groove for a U-shaped packing which is self-adjusting and designed not to work loose.

A choke valve, of the poppet type, has its seat in the

wall of the holder-on barrel. It is opened and closed by a cam action through the handle, and is provided with a tension plug and spring and a flattened surface on the body to hold it either open or closed. A return spring is provided so that the holder-on action will instantly release as soon as the throttle is closed. A side handle, in addition to the regular throttle, is securely clamped to the body of the holder-on.

A number of thin steel washers are placed between the holder-on barrel and rear cap so that the position of the throttle can be easily changed by removing or adding to these washers.

The Thor hammer-type holder-on is made in four sizes. The weight of the smallest size is 30 lb., and the largest, 35 lb. The lengths without center or set of the four sizes are as follows: 12¾ in., 14¾ in., 16¾ in., and 17¾ in. The stroke of the holder-on in all sizes is 3¼ in. It is made by the Independent Pneumatic Tool Company, 600 West Jackson boulevard, Chicago.



Thor Hammer Type Holder-On

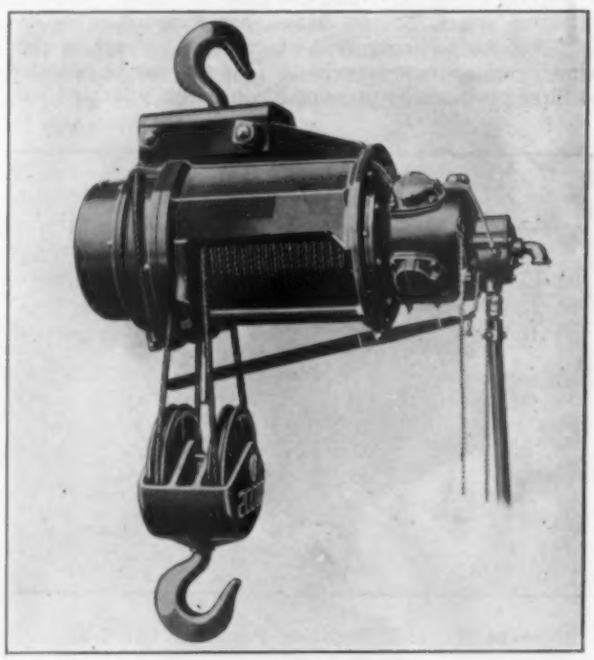
Air-Motor Hoist of Ten Tons Capacity

AN air-motor hoist of 20,000 lb. capacity is being exhibited by the Ingersoll-Rand Company, 11 Broadway, New York. This hoist is designed for handling locomotive driving wheels at lathes and presses and for other heavy lifting work which would otherwise tie up a crane.

The hoist employs a powerful four-cylinder air-motor, geared to a rope drum, which is completely enclosed in a compact and dirt-proof housing. The gears are made of special steel and heat treated to insure extra strength and wearing qualities. They operate in a bath of semi-fluid grease, completely enclosed. Ball bearings or bronze bushings are provided at all points where experience has indicated that they will add to the efficiency and life of the hoist.

An automatic brake of similar design to that used in other Ingersoll-Rand air hoists, is incorporated in this new size. This safety brake automatically holds the load at any desired position for any length of time, regardless of the air pressure. Instant and complete control of the hoist movement is obtained by a graduated throttle and a well-balanced motor. The latter operates practically without vibration. The cylinders are renewable and interchangeable, making it easy and inexpensive to renew the cylinders if worn after long service.

The hoist can be furnished with either a top hook or a chain-driven trolley. It has a maximum lift of 16 ft. and a weight of 1,300 lb. equipped with the top hook. The manufacturer is prepared, if necessary, to build special trolleys to meet the customers' requirements.



Ingersoll-Rand Ten-ton Air-Motor Hoist for Locomotive Shop Work

Milburn Super-Master Gas Regulator

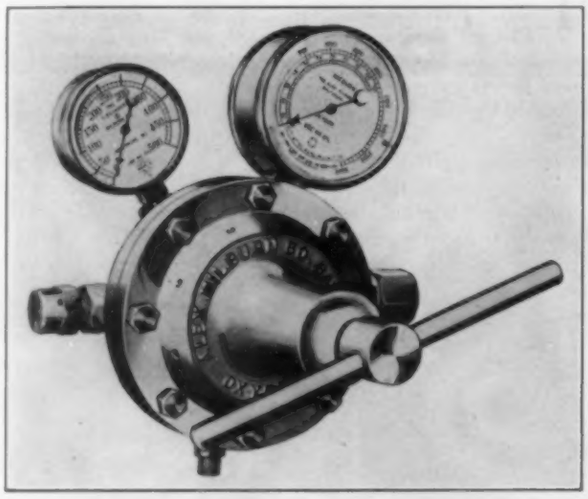
GAS, such as oxygen, which is compressed in cylinders up to approximately 2,000 lb. per sq. in. for welding and cutting purposes, has to be delivered at reduced pressures ranging from several ounces to several pounds per square inch. For industrial purposes, it is necessary to give a large flow of gas at continuously uniform pressures in a dependable manner, day in and day out. The new super-master regulator exhibited by the Alexander Milburn Company, 1416-1428 West Baltimore street, Baltimore, Md., has been designed to supply the demand for a regulator for use in operations where a large volume of gas or a great number of outlets are to be controlled. It is equipped with 3,000-lb. initial gages and 500-lb. delivery gages.

It is sturdy and affords protection to the line and other apparatus in case mishandling or accident should result in sudden additional or violent pressures. In addition to its strength, however, it responds to the needs of the most delicate operation as well as the heaviest.

The bonnet is of sturdy bolted construction. An added feature is a safety-blow-off valve. The diaphragm extends to the outer circumference of the regulator and is secured by the same bolts which secure the bonnet. The floating operating pin is of monel metal which combines high resistance to oxidation and corrosion with a tensile strength greater than mild steel. The diaphragm is of a special bronze, which is resilient and has high

corrosion resistance. An 8-in. heavy steel key affords ample leverage for the very highest pressures.

Accessibility is another feature of the regulator. The used can reach the seat of the regulator without disconnecting it from the bottle or hose. The main operating parts comprise only a pin, nozzle and seat-carrying sleeve and are immediately available for examination, cleaning or removal. The seat is subject to very slight wear. The spring closes the seat with, instead of against, the pressure. This enables the seating to be effected by a sealing pressure of several pounds instead



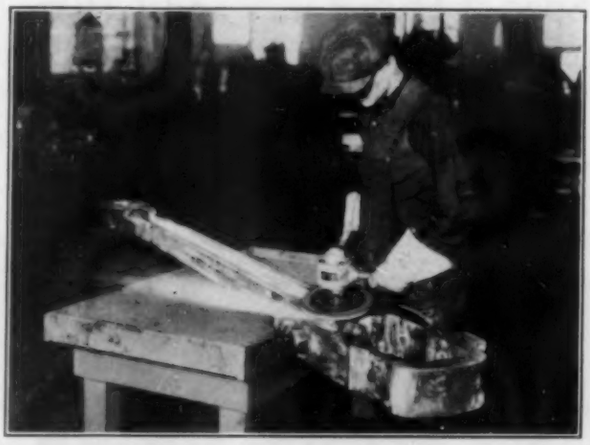
The Super-Master Regulator Is Equipped with 3,000-Lb. Initial and 500-Lb. Delivery Gages

of hundreds of pounds, thus eliminating damage to or splitting of the seat. All parts fit or screw into place. There are no bolts, pins or set screws to manipulate. Similar to Milburn regulators of previous design, this one is constructed so as to eliminate the danger of freezing even in extremely low temperatures.

Hercules Pneumatic Sander and Polisher

THE Buckeye Portable Tool Company, Dayton, Ohio, is exhibiting two pneumatic tools which, used together, are especially adapted to railroad shop work for finishing, sanding and polishing operations. These tools are the Hercules No. 62 sander, which is described in this article, and the Hercules No. 63 grinder which was described on page 372 of the June, 1927, Railway Mechanical Engineer.

The Hercules No. 62 sander, like other pneumatic tools manufactured by this company, operates on the rotary principle. There are no pistons but the motion is produced by air operating against movable blades in a rotor in such an arrangement that while one or more blades are taking compressed air, the others are exhausting. Either three or five blades, according to the speeds desired, are inserted in slots in the rotor which operates in an elliptically-shaped chamber. The control of the air is such that each blade is forced out from the rotor twice during a single revolution, and at the same time, air operates against these blades to produce the rotation. Speed is controlled by the number of blades—the three-blade rotor has a slower speed than the five-blade rotor. Thus the proper speed for the class of work is predetermined, and the tool built especially for that work is used. The usual policy is to use the slower speed tool on wood work and the higher speed tool on metal work where a flexible felt pad on an abrasive disc may be used.



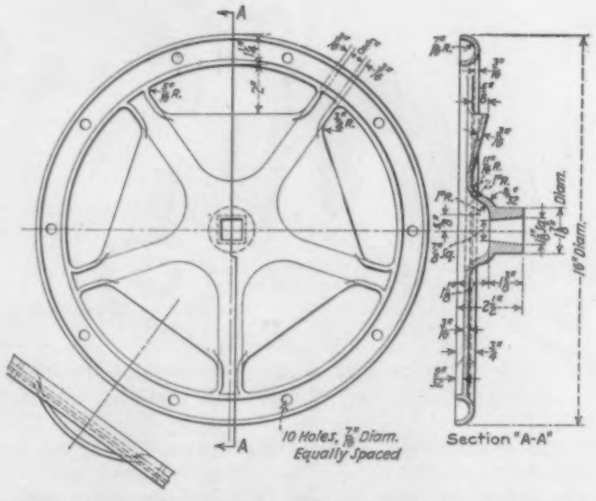
The Hercules Sander Is Adapted to Such Work as Polishing Rods and Steel Sheets

Lubrication of the tool is accomplished by a unique system. Grease is injected by a grease gun into the tool at one point and grease re-appears at the outlet on the other end of the tool. In this way, it is always known whether sufficient grease is in the tool, and so long as it is kept greased the tool cannot heat up or in any way retard operation.

A Non-club Brake Wheel

A BRAKE wheel which eliminates the use of a brakeman's club to secure additional leverage, is included in the exhibit of the Union Railway Equipment Company, McCormick building, Chicago.

It is designed so that a brakeman's club cannot be



A Club Cannot be Used on the Ureco Non-Club Brake Wheel

inserted between the spokes in any manner and when used in connection with a high-power hand brake, insures against abuse of the brake by setting it too tight. The wheel is also designed to fit the operator's hand comfortably and to give him full opportunity to exert the necessary force by providing a natural hand grip free

from sharp corners, chafing, etc. The wheel is dished in the center so that the nut on the end of the brake staff is flush with or below the top of the wheel when applied.

Special Hub Liner and Cellar Included in Engine Truck Box

THE two features of the engine truck box being exhibited by the American Locomotive Company, 30 Church street, New York, are the application of Alco hub liners and the Quicpac cellar.

The hub liners are in two sections, each having a dovetail tongue on the back which is inserted from above into a corresponding dovetail groove in the face of the box. These grooves converge toward the bottom and a horizontal bolt holds the liner sections from displacement. Oil pockets are formed in the castings from which oil is led through grooves to the hub face. When maximum wear has been reached, the liner need not be scrapped, but, instead, may be built up to its original thickness with babbitt or some other suitable metal and returned to service. The removal and replacement of the liners is made without disturbance to other parts of the locomotive.

The Quicpac cellar is for the purpose of repacking without having to remove the cellar from the box and was developed with the idea of expediting the packing of cellars on engines engaged in long-run service where the time at intermediate terminals is insufficient for removal of the cellars. The wide cellar mouth extended through the inner end of the box is closed by a non-detachable spring-hinged lid which, in its open position, permits the easy removal of the old packing and its replacement with new in a minimum of time. The sloping bottom of the cellar mouth allows oil to run down onto the packing and provides no loss from leakage. These cellars are equally applicable to either two- and four-wheel trucks and will interchange with cellars now in use.

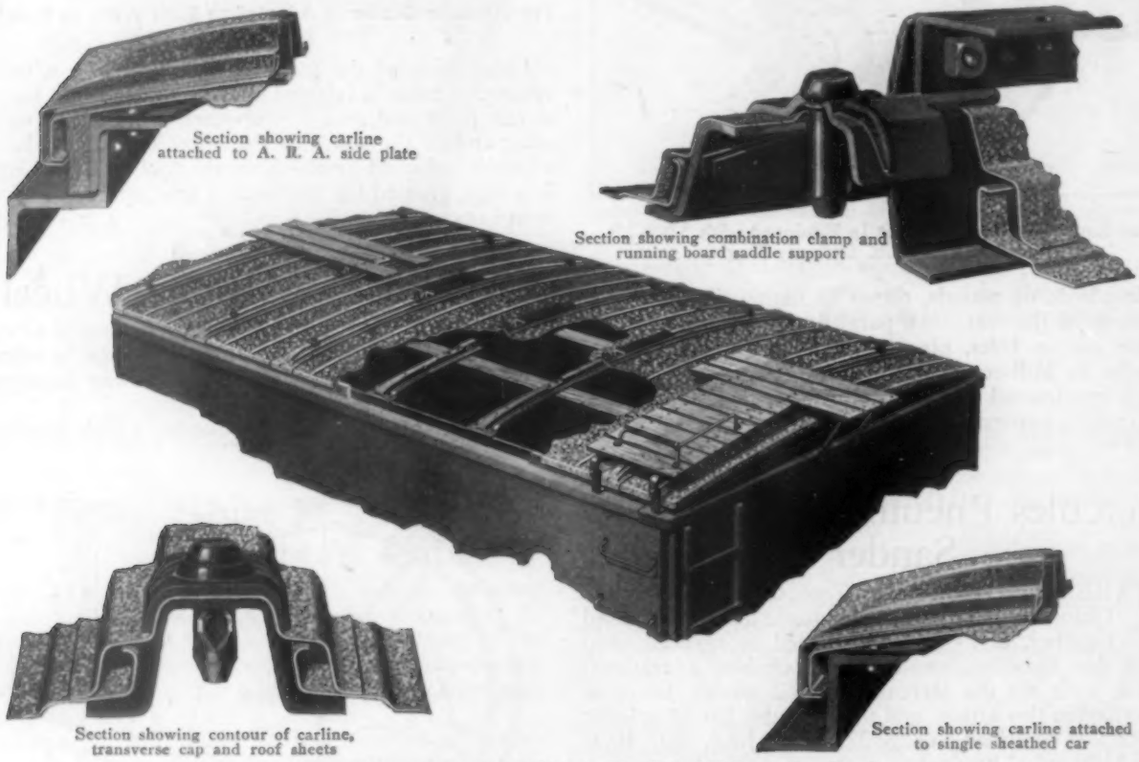
Climax Flexible All-steel Car Roof

THE Chicago-Cleveland Car Roofing Company, 1617 Kimball building, Chicago, is exhibiting its Climax flexible all-steel roof, the sheets of which are made of heavy-gage galvanized steel. Although these sheets extend from side plate to side plate without a break at the ridge, they are entirely flexible at all points. The sheets, transverse caps and carlines are formed to a circular arc so that the caps will have an even pressure on the sheets at all times.

The unique construction of the Climax roof is the transverse caps, so formed as to have the top portion in wedging contact with the top of the carline and offsets pressed into the sides to house the formed edges of the roof sheets.

It is not necessary to use rivets as a method of holding down the sheets and caps. Clamps, with draw keys, are used as a means of fastening which makes for an easy method of application and also for a satisfactory element to remove in the event of making repairs.

The carlines are of the inverted U-type and are sufficiently strong not only to support the roof, but also to hold the side plate in alignment. In addition to the carlines, there is a ridge pole and two purlines to stiffen the superstructure and support the roof sheets.


Section showing carline attached to A. R. A. side plate
Section showing combination clamp and running board saddle support
Section showing contour of carline, transverse cap and roof sheets
Section showing carline attached to single sheathed car

The Chicago-Cleveland Climax Flexible All-Steel Car Roof